CFS-515S

SERVICE MANUAL

E Model

Ver. 1.0 1998.07

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MF-W495-117

SPECIFICATIONS

Frequency range	FM : Saudi Arabia model : 87.6 – 107MHz EXCEPT Saudi Arabia model : 87.6 – 108MHz MW : 530 – 1,605kHz SW1 : 2.3 – 7 MHz SW2 : 7 – 22MHz
IF	FM : 10.7MHz MW/SW : 455kHz
Aerials	FM/SW : Telescope MW : Built-in ferrite bar
Recording system	4-track, 2-channel stereo
Frequency response	70 – 13,000Hz
Speakers	Full range : 10cm (4 inches) dia., 6ohms, cone type/Tweeter : 2cm ($^{13}/_{16}$ inches) dia.
Output	Headphones jack (stereo minijack), for 16 – 68 ohms impedance headphones
Maximum Power output	5W+5W
Battery life	FM Recording : Sony R20P : Approx. 10hours/ Sony LR20 alkaline : Approx. 20hours Playback : Sony R20P : Approx. 3.5hours/ Sony LR20 alkaline : Approx. 8hours
Power requirements	110 – 120V/220 – 240V AC selectable, 50/60Hz 9V DC, six R20 (size D) batteries
Power consumption	AC 18 W
Dimensions	Approx. 697 x 211 x 201.5 mm (w/h/d) (27 $^{1}/_{2}$ x 8 $^{3}/_{8}$ x 8 inches) incl. projecting parts and controls, not incl. handle
Mass	Approx. 6.2 kg (13 lb 10 oz) incl. batteries
Supplied accessories	AC power cord (1),

Design and specifications are subject to change without notice.

RADIO CASSETTE-CORDER

MICROFILM

SONY®

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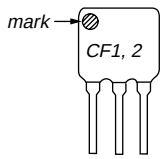
• HOW TO CHANGED THE CERAMIC FILTERS

This model is used two ceramic filters of CF1 and CF2.
You must used same type of color marked ceramic filters in order to meet same specifications.
Therefore, the ceramic filter must changed two pieces together since it's supply two pieces in one package as a spare parts.



Mark	Center fequency
red	10.70MHz
blue	10.67MHz
orange	10.73MHz

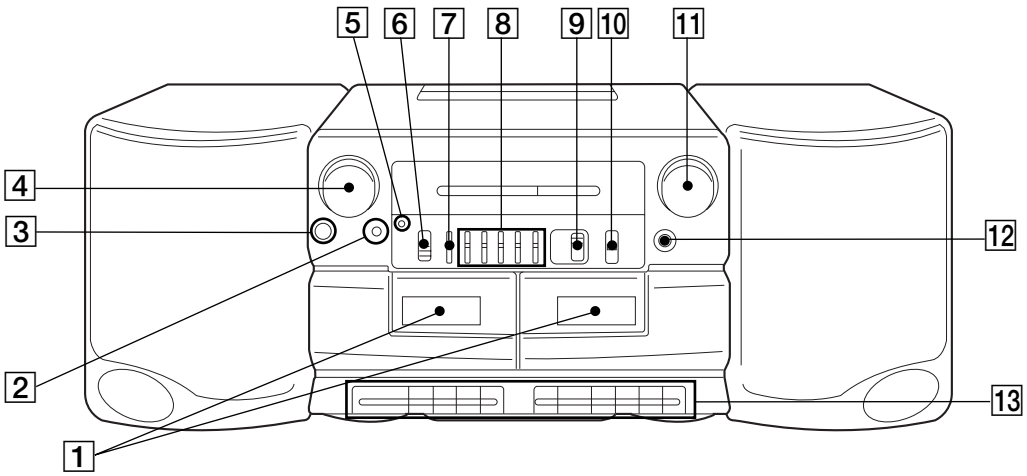
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION.
REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
GENERAL

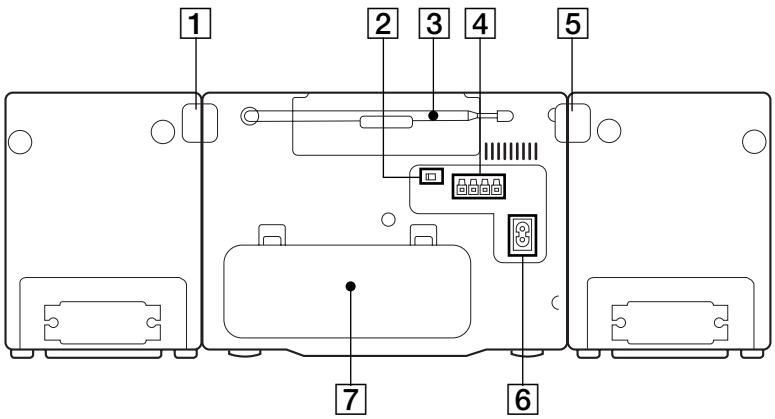
LOOKING AT THE CONTROLS

FRONT PANEL



1 Cassette compartments
2 MIC (microphone)
3 PHONES (headphones) jack (stereo mini-jack)
4 VOLUME control
5 OPR/BATT (operation/battery) indicators
6 FUNCTION selector
  RADIO
  DUBBING HIGH
  DUBBING NORM
  TAPE/RADIO OFF
7 BALANCE control
8 5 BAND GRAPHIC EQUALIZER controls
9 PRESET MODE selector
10 BAND selector
11 TUNING control
12 FINE TUNING control
13 Tape operating buttons
  ● REC (record) button : Deck B only
  ► PLAY (playback) button
  ◄◄ REW (rewind) button
  ►► FF (fast-forward) button
  ■⏏ STOP/EJECT button
  ▮▮ PAUSE button

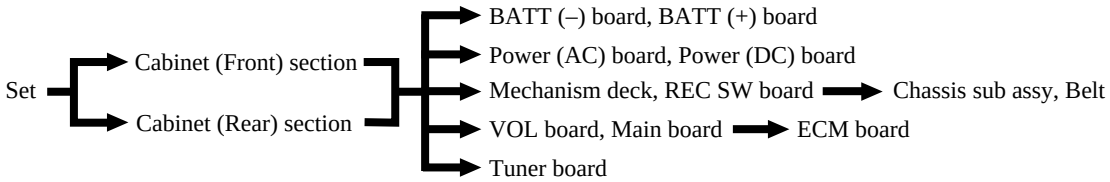
REAR PANEL



1 LOCK tab (right side)
2 FM MODE switch
3 Telescopic aerial
4 SPEAKER terminals
5 LOCK tab (Left side)
6 ~ AC IN (AC power input) socket
7 Battery compartment

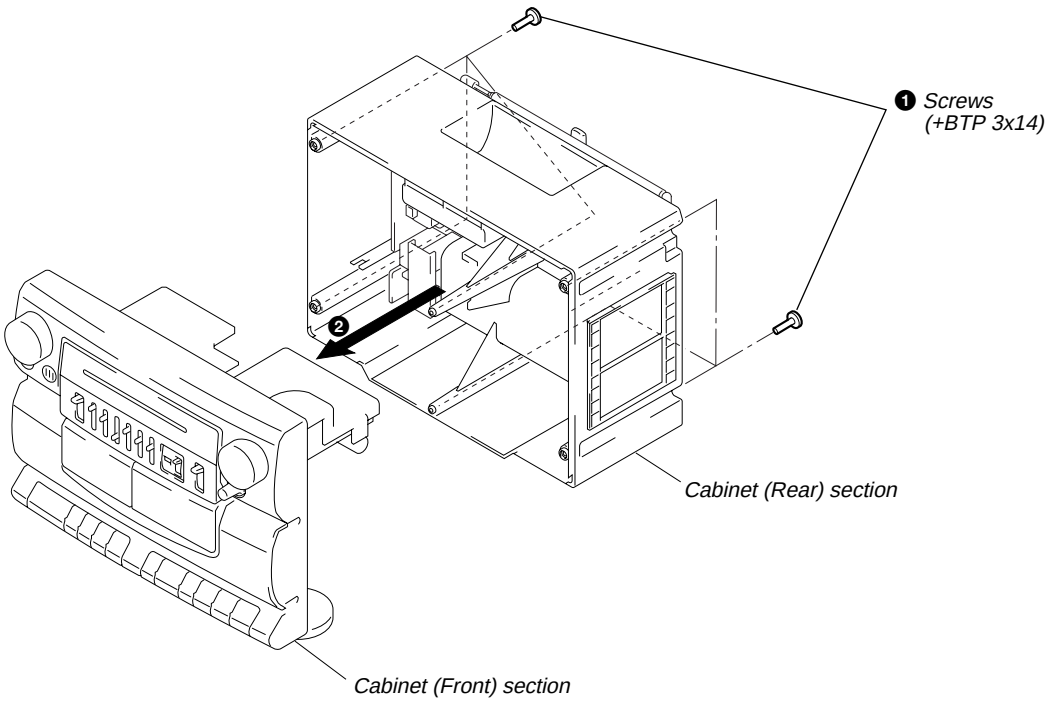
SECTION 2
DISASSEMBLY

● The equipment can be removed using the following procedure.

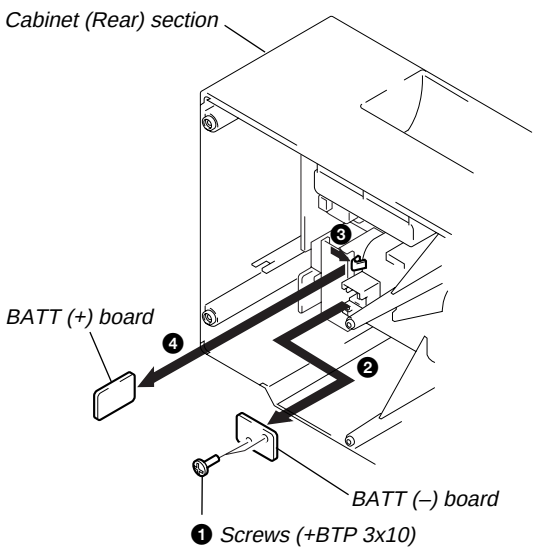


Note : Follow the disassembly procedure in the numerical order given.

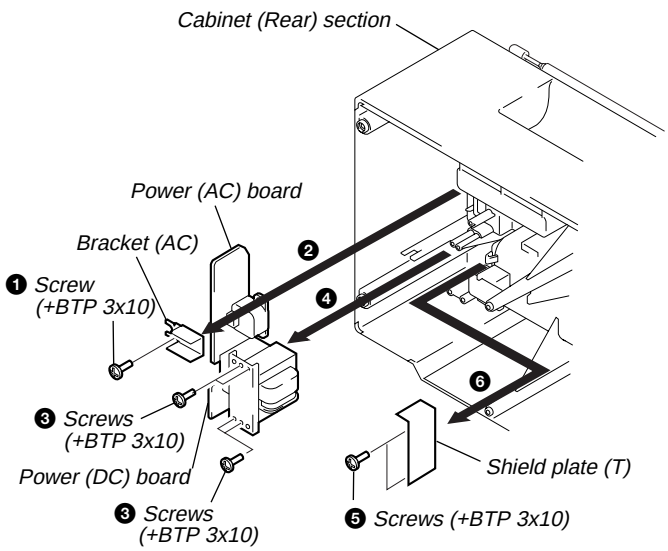
2-1. CABINET (FRONT) SECTION, CABINET (REAR) SECTION



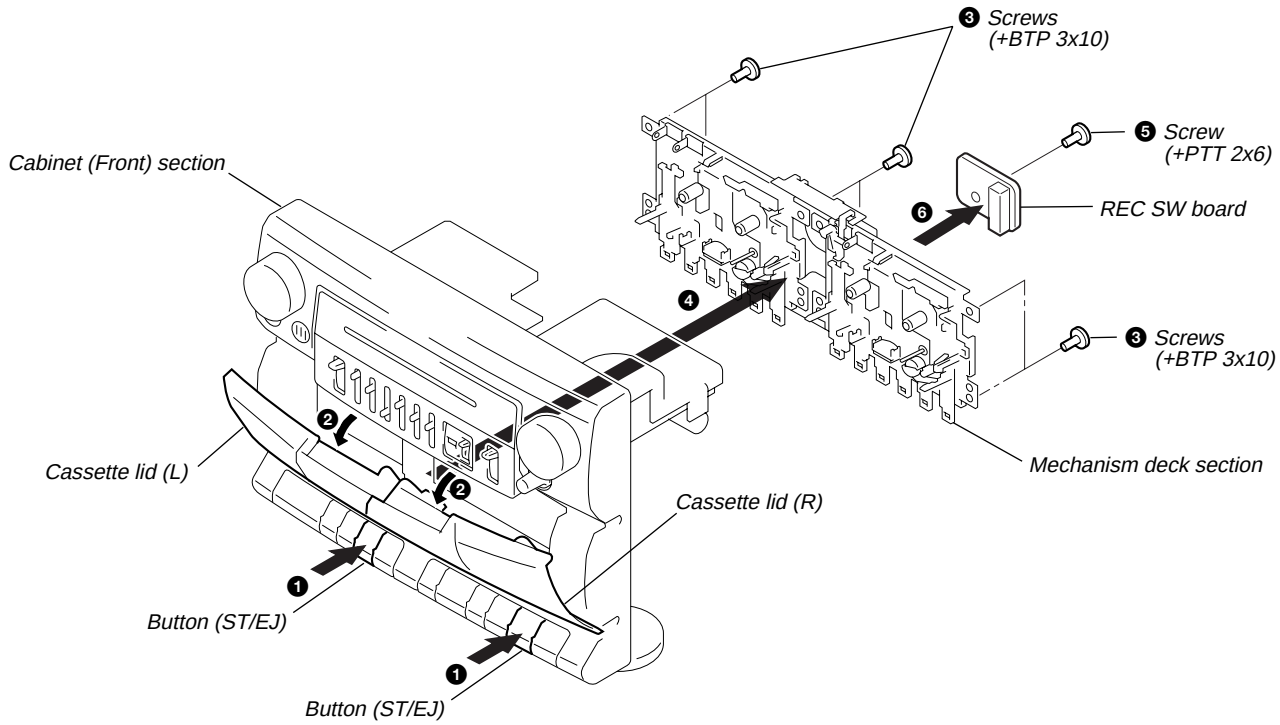
2-2. BATT (–) BOARD, BATT (+) BOARD



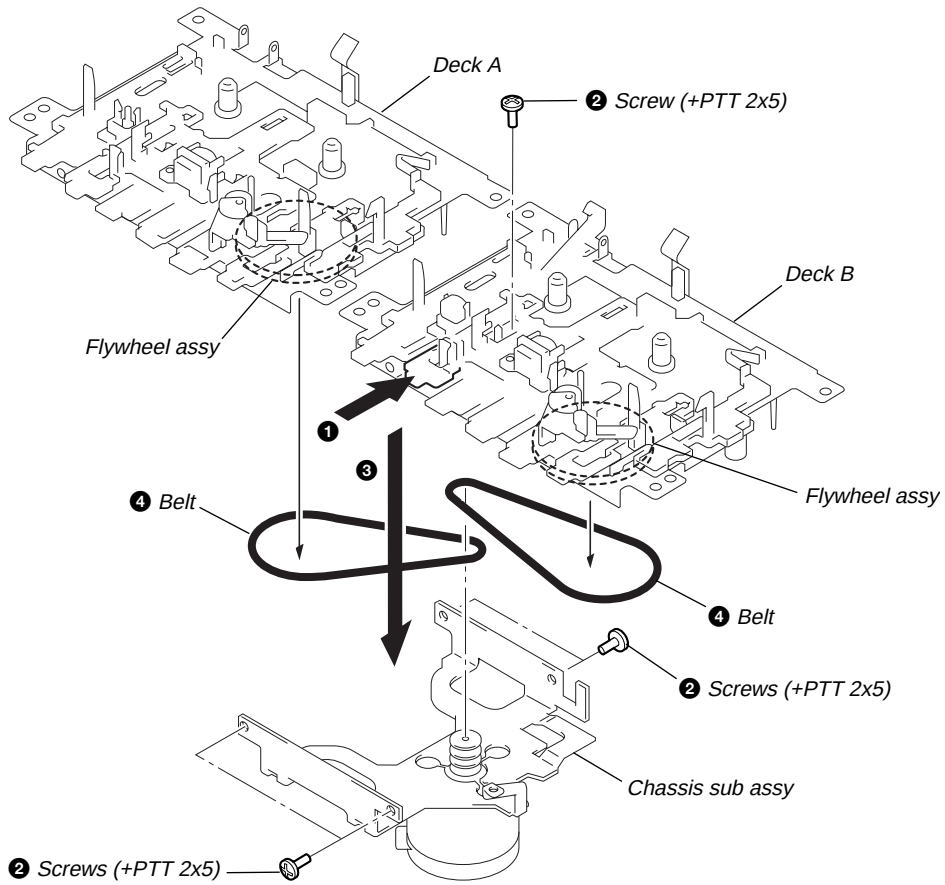
2-3. POWER (AC) BOARD, POWER (DC) BOARD



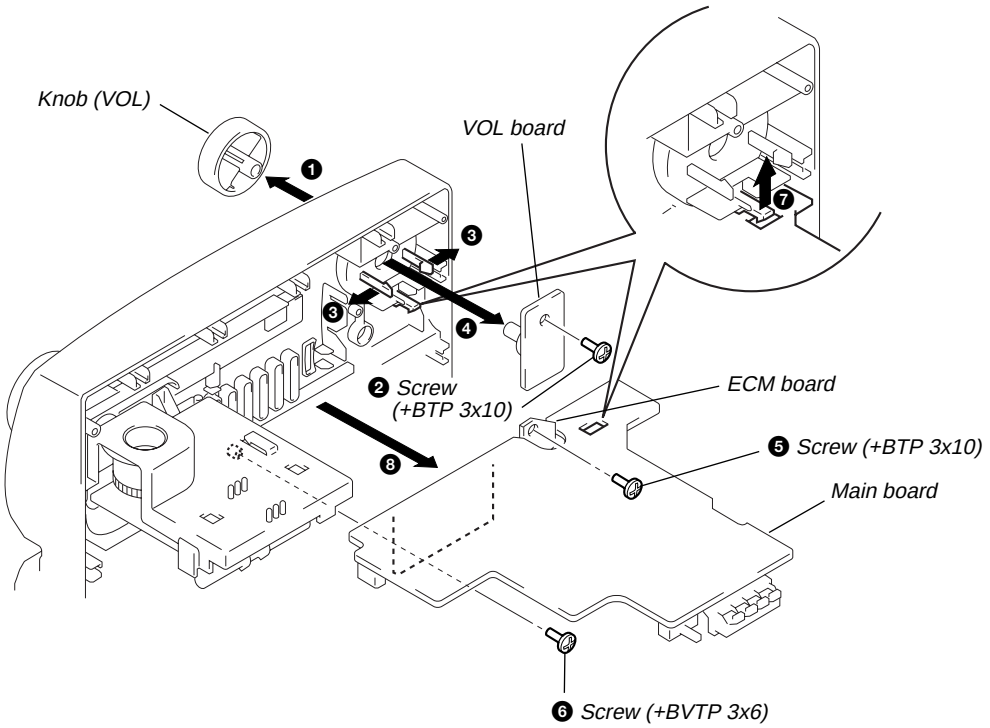
2-4. MECHANISM DECK, REC SW BOARD



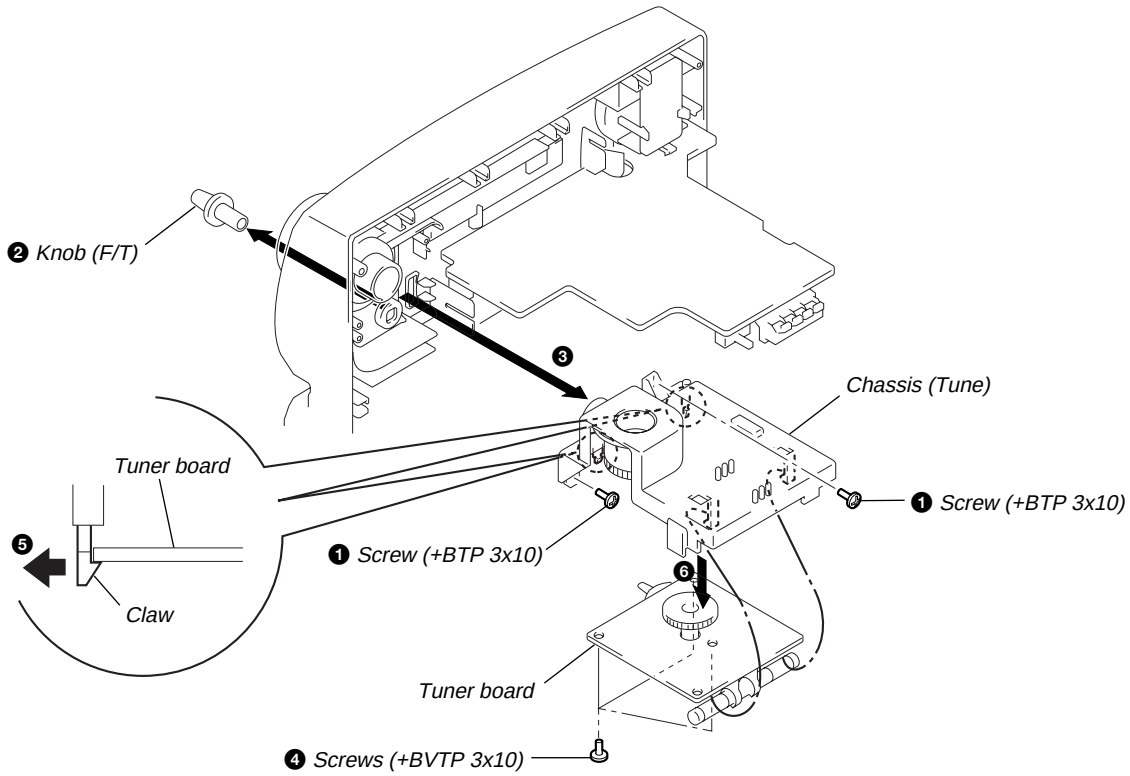
2-5. CHASSIS SUB ASSY, BELT



2-6. VOL BOARD, MAIN BOARD, ECM BOARD

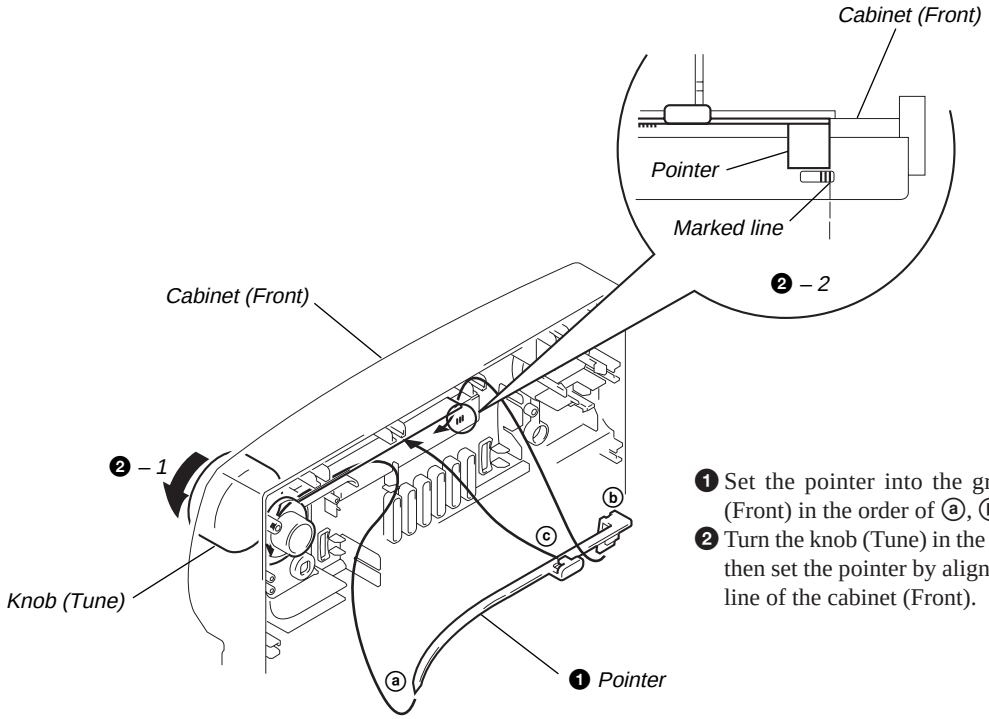


2-7. TUNER BOARD

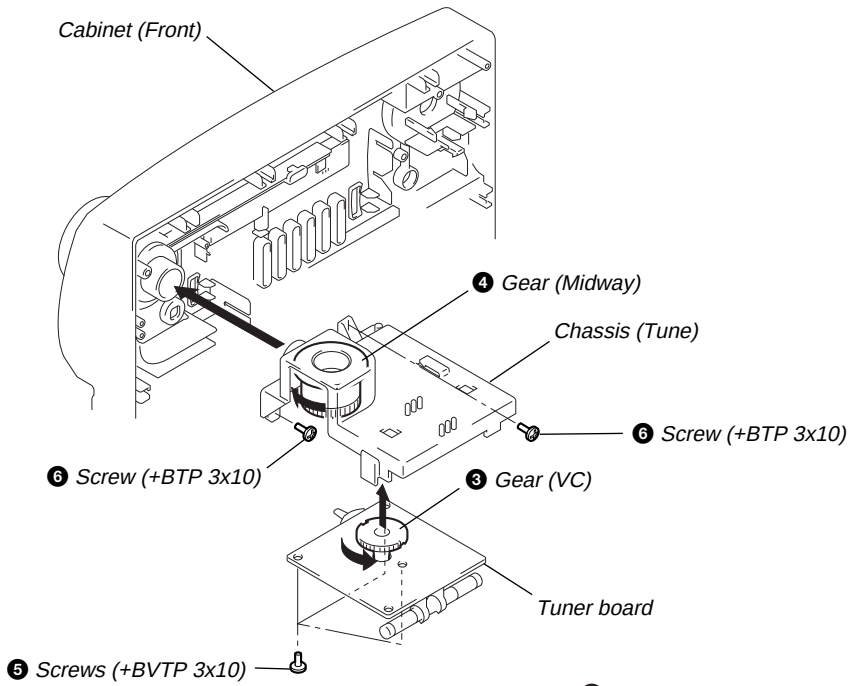


SECTION 3
DIAL POINTER INSTALLATION

Note : Follow the installation procedure in the numerical order given.



❶ Set the pointer into the grooves of the cabinet (Front) in the order of ⓐ, ⓑ and ⓒ.
❷ Turn the knob (Tune) in the direction of the arrow, then set the pointer by aligning it with the marked line of the cabinet (Front).



❸ Turn the gear (VC) fully counterclockwise.
❹ Turn the gear (Midway) fully clockwise.
❺ Mount the tuner board to the chassis and tighten with screws.
❻ Mount the chassis (Tune) to the cabinet (Front) and tighten with screws.

SECTION 4
ADJUSTMENTS

4-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab :
   record/playback head, playback head, pinch roller, erase head, rubber belt, capstan
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque Meter	Meter Reading
Playback	CQ-102C	18 – 60 g • cm (0.25 – 0.83 oz• inch)
Back Tension	CQ-102C	1 – 5 g • cm (0.014 – 0.069 oz• inch)
Rewind	CQ-201B	45 – 95 g • cm (0.63 – 1.31 oz• inch)
Fast Forward		

Tape Tension Measurement

Mode	Tension Meter	Meter Reading
FWD	CQ-403A	more than 60g (2.12 oz)

4-2. ELECTRICAL ADJUSTMENTS

TAPE SECTION

1. The adjustments should be performed in the order give in the service manual. (As a general rule, playbak circuit adjustment should be completed before performing recording circuit adjustment.)
2. The adjustments should be performed for both L-CH and R-CH unless otherwise indicated.

- Switch location
  FUNCTION switch ..... TAPE (RADIO OFF)
  PRESET MODE ..... MANUAL
  GRAPHIC EQUALIZER ..... center click
  BALANCE ..... center click
  VOLUME ..... MAX
  MEGA BASS ..... mechanical center

Standard Output Level

Output terminal	PHONES	SP (FRONT) OUT
Load impedance	32Ω	6Ω
Output signal level	0.25V (–10dB)	0.775V (0dB)

Test Tape

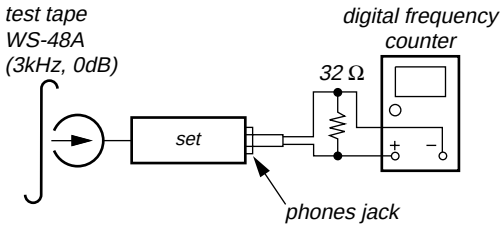
Type	Signal	Used for
WS-48A	3kHz, 0dB	Tape Speed Adjustment

0dB=0.775V

Tape Speed Adjustment

Procedure :

Mode : Playback



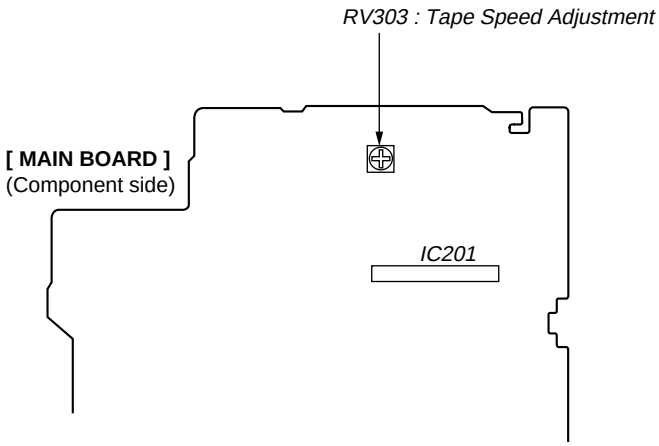
(Normal speed)

1. Deck A to playback mode.
2. Adjust the RV303 for 2,985 – 3,015Hz reading on digital frequency counter.
3. Frequency difference between the beginning and the end of the tape should be within 1% (30Hz).

(High speed)

4. Deck B to record mode.
5. Deck A to high speed playback mode.
6. Confirm that the reading of the digital voltmeter becomes 5,500 – 6,500Hz.
7. Frequency difference between the beginning and the end of the tape should be within 1% (30Hz).

Adjustment Location :



TUNER SECTION

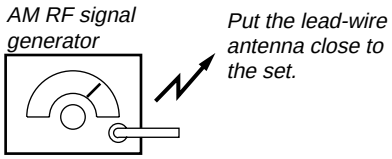
0dB=1 μV

no mark : COM
< > : Saudi Arabia model

- Switch location
  FUNCTION switch ..... RADIO
  PRESET MODE ..... MANUAL
  GRAPHIC EQUALIZER ..... center click
  BALANCE ..... center click
  VOLUME ..... MAX
  MEGA BASS ..... mechanical center

MW Section

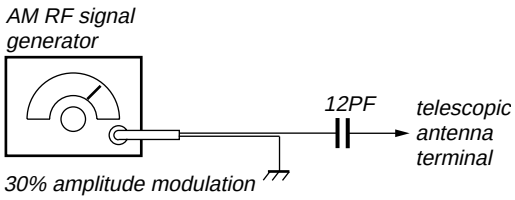
Procedure :
BAND switch : MW
FINE TUNING control : mechanical center



30% amplitude modulation by 400Hz signal.
Output level : as low as possible

SW Section

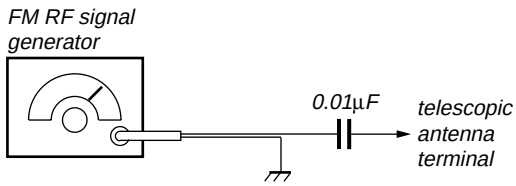
Procedure :
BAND switch : SW1, SW2
FINE TUNING control : mechanical center



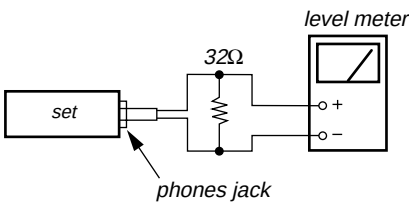
30% amplitude modulation by 400Hz signal.
Output level : as low as possible

FM Section

Procedure :
BAND switch : FM
FINE TUNING control : mechanical center



22.5kHz frequency deviation by 400Hz signal.
Output level : as low as possible



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM IF ADJUSTMENT	
Adjust for a maximum reading on level meter.	
T1	455kHz

MW FREQUENCY COVERAGE ADJUSTMENT		
Adjust for a maximum reading on level meter.		
L4	520kHz	< 516kHz >
CT4	1,680kHz	< 1,630kHz >

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L3	600kHz
CT3	1,400kHz

SW1 FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L6	2.2MHz
CT6	7.3MHz

SW1 TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L5	2.2MHz
CT5	7.3MHz

SW2 FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L8	6.8MHz
CT8	22.5MHz

SW2 TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L7	6.8MHz
CT7	22.5MHz

FM IF ADJUSTMENT	
Adjust for a maximum reading on level meter.	
T2	10.7MHz

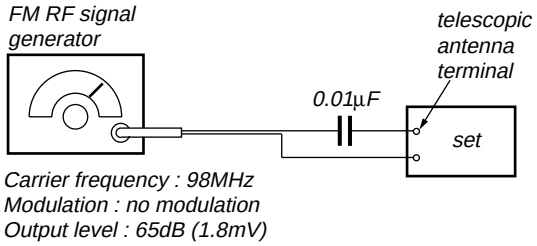
FM FREQUENCY COVERAGE ADJUSTMENT		
Adjust for a maximum reading on level meter.		
L2 <L21>	86.5MHz	< 87.35MHz >
CT2	109.5MHz	< 107.8MHz >

FM TRACKING ADJUSTMENT		
Adjust for a maximum reading on level meter.		
L1	86.5MHz	< 87.35MHz >
CT1	109.5MHz	< 107.8MHz >

Adjustment Location : Tuner board (page 10)

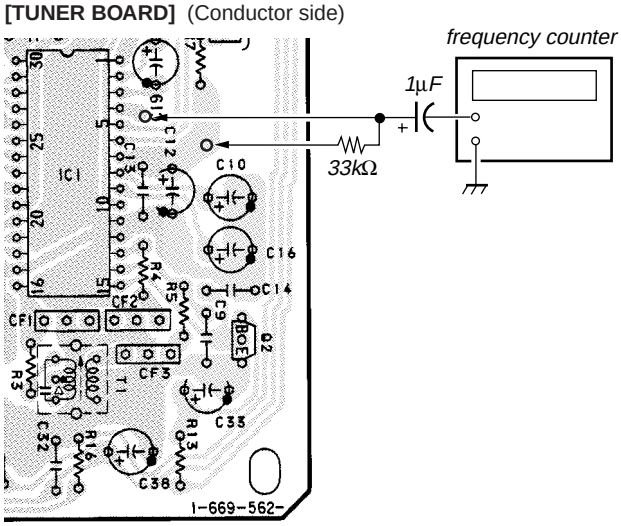
FM VCO Adjustment

Procedure :

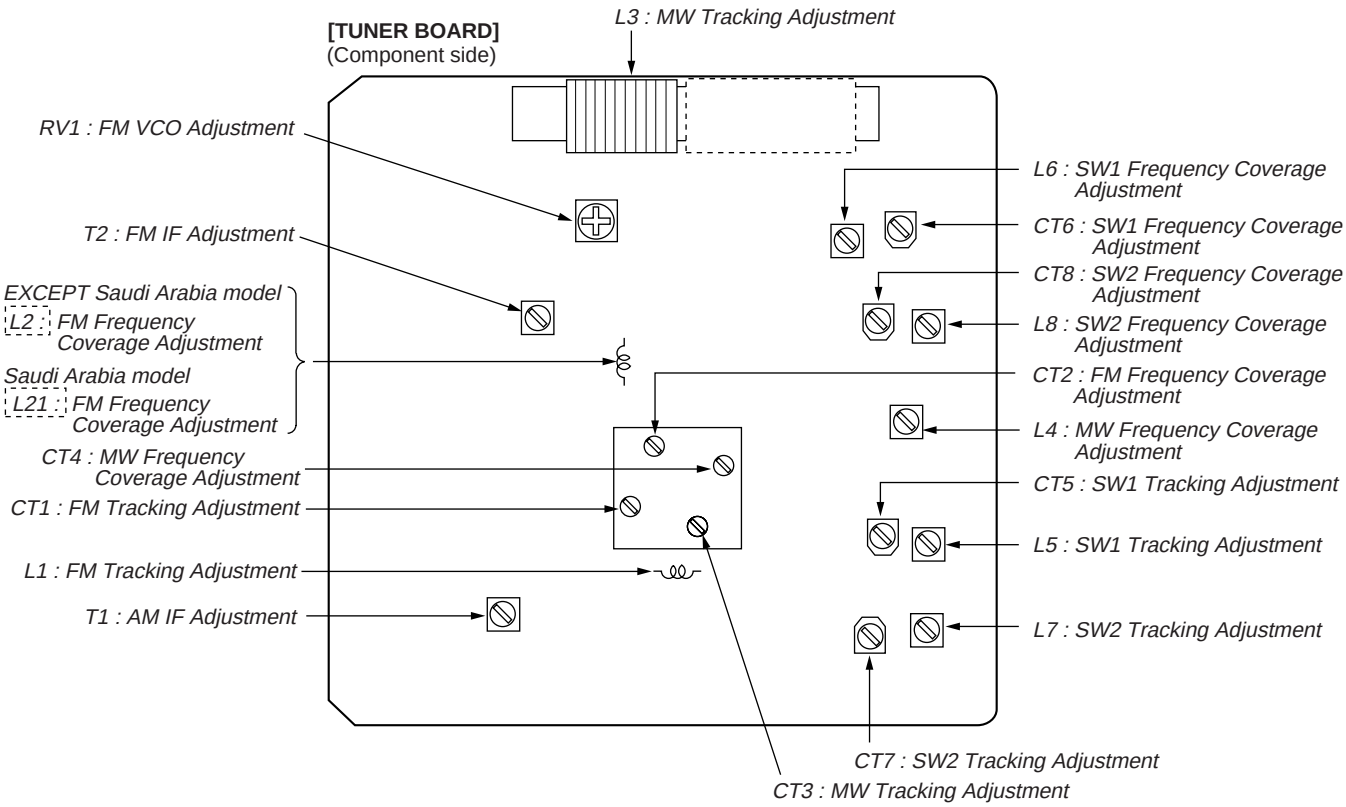


1. Connect the frequency counter to ④ and ⑦ pins of IC1 as shown the figure below.
2. Turn the set to 98MHz.
3. Adjust RV1 for 75.95kHz – 76.05kHz reading on frequency counter.

[TUNER BOARD] (Conductor side)

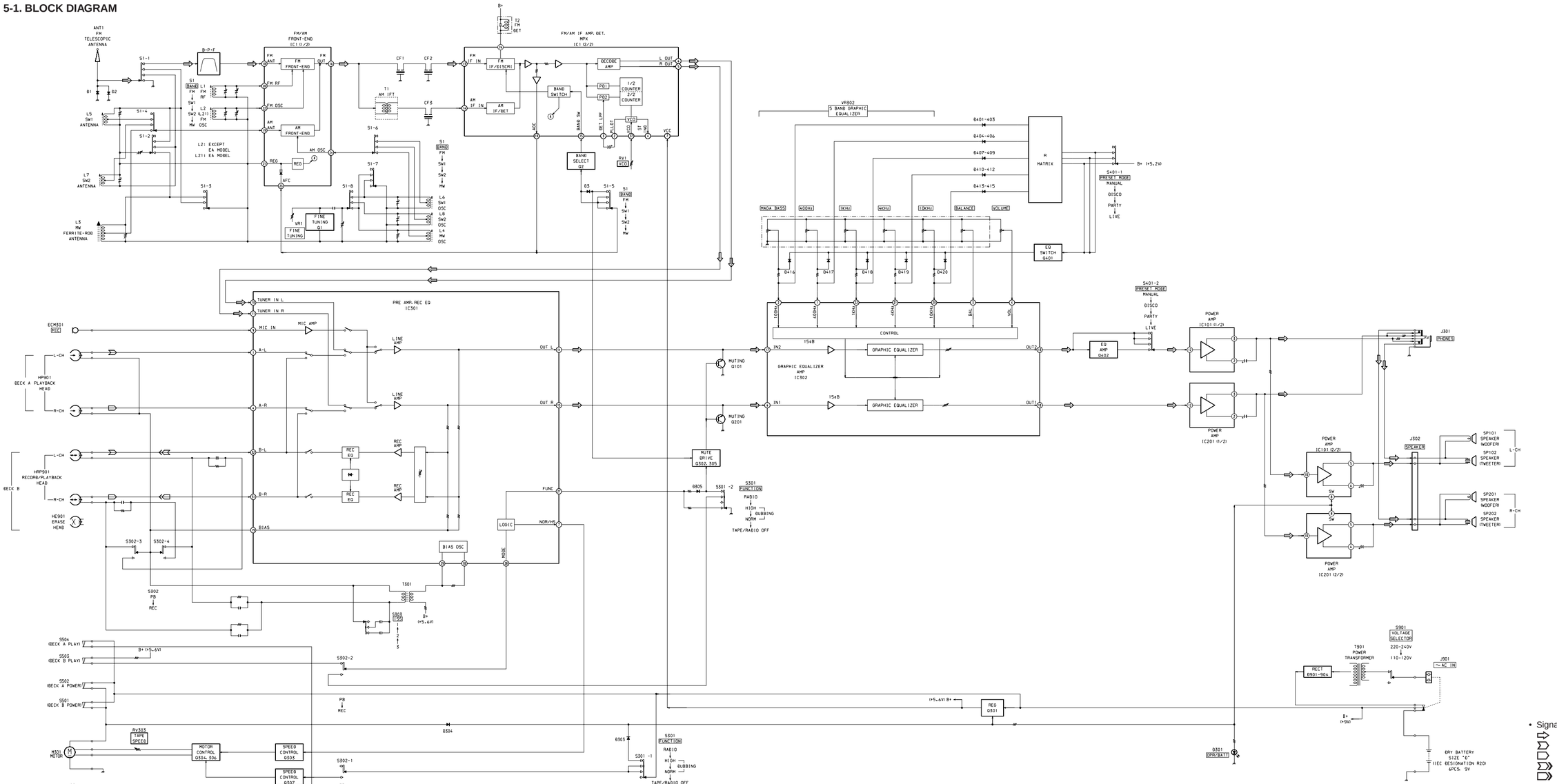


Adjustment Location : Tuner board


[TUNER BOARD]
(Component side)
L3 : MW Tracking Adjustment
RV1 : FM VCO Adjustment
T2 : FM IF Adjustment
EXCEPT Saudi Arabia model
L2 : FM Frequency Coverage Adjustment
Saudi Arabia model
L21 : FM Frequency Coverage Adjustment
CT4 : MW Frequency Coverage Adjustment
CT1 : FM Tracking Adjustment
L1 : FM Tracking Adjustment
T1 : AM IF Adjustment
L6 : SW1 Frequency Coverage Adjustment
CT6 : SW1 Frequency Coverage Adjustment
CT8 : SW2 Frequency Coverage Adjustment
L8 : SW2 Frequency Coverage Adjustment
CT2 : FM Frequency Coverage Adjustment
L4 : MW Frequency Coverage Adjustment
CT5 : SW1 Tracking Adjustment
L5 : SW1 Tracking Adjustment
L7 : SW2 Tracking Adjustment
CT7 : SW2 Tracking Adjustment
CT3 : MW Tracking Adjustment

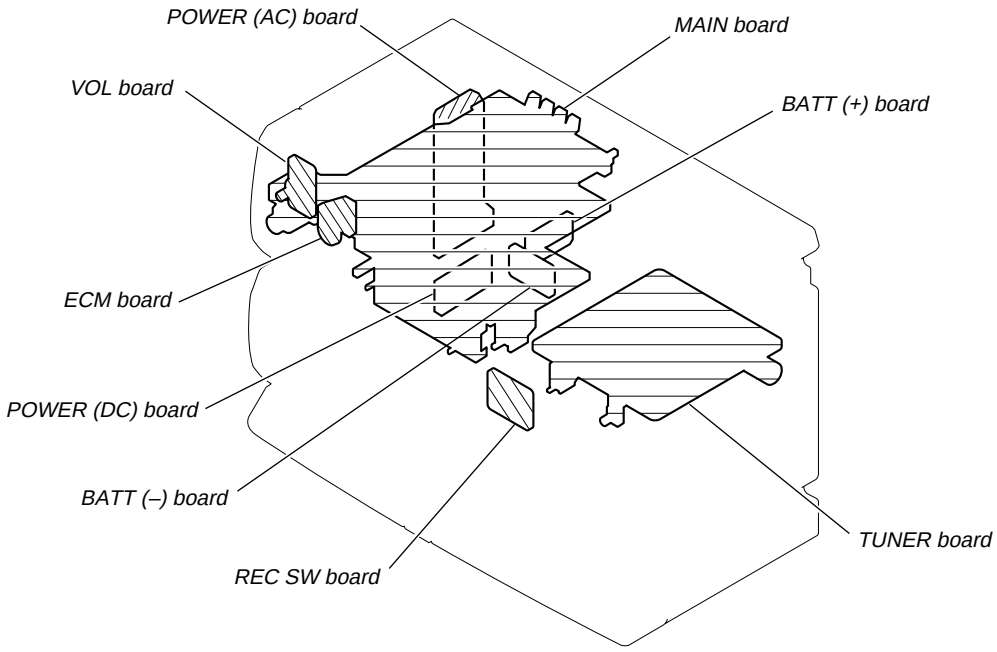
SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAM



- Signal path.
  - : FM
  - : PB (L-CH)
  - : PB (R-CH)
  - : REC (L-CH)
  - : REC (R-CH)

● Circuit Boards Location



Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- : nonflammable resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

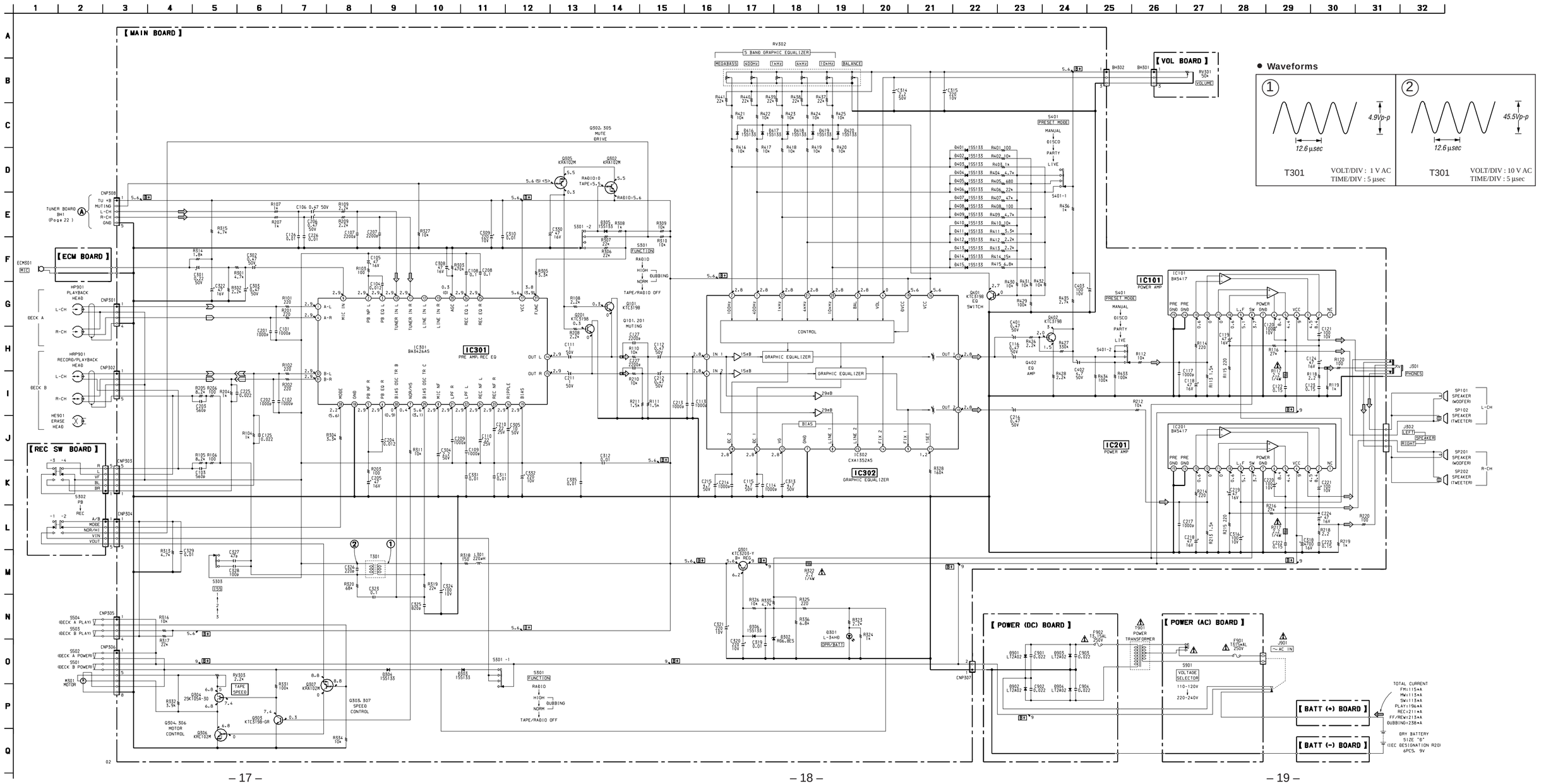
- B+ : B+ Line.
- : adjustment for repair.
- Power voltage is dc 9V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : PLAY
  ( ) : REC
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  : FM
  : PB (L-CH)
  : PB (R-CH)
  : REC (L-CH)
  : REC (R-CH)

● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D301	H-7	D417	H-10
D302	G-7	D418	H-10
D303	G-8	D419	H-10
D304	D-8		
D305	G-8	D420	H-10
D306	G-7		
D401	F-11	IC101	F-7
D402	G-11	IC201	D-7
D403	F-11	IC301	E-9
D404	F-11	IC302	G-10
D405	G-11		
D406	F-11	Q101	F-11
D407	F-11	Q201	F-10
D408	G-11	Q301	G-7
D409	F-11	Q302	H-9
		Q303	C-8
D410	F-11		
D411	G-11	Q304	C-8
D412	F-11	Q305	F-10
D413	F-11	Q306	D-8
D414	G-11	Q307	G-9
		Q401	H-11
D415	F-11		
D416	H-10	Q402	H-11

Note on Printed Wiring Boards:

- ○——— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ▒▒▒ : Pattern from the side which enables seeing.


【MAIN BOARD】
【ECM BOARD】
【REC SW BOARD】
【VOL BOARD】
【POWER (DC) BOARD】
【POWER (AC) BOARD】
【BATT (+) BOARD】
【BATT (–) BOARD】
IC301
PRE AMP, REC EQ
IC302
GRAPHIC EQUALIZER
IC101
POWER AMP
IC201
POWER AMP
● Waveforms
①
4.9Vp-p
12.6 µsec
T301
VOLT/DIV : 1 V AC
TIME/DIV : 5 µsec
②
45.5Vp-p
12.6 µsec
T301
VOLT/DIV : 10 V AC
TIME/DIV : 5 µsec
TOTAL CURRENT
FM:115mA
MW:115mA
SW:115mA
PLAY:196mA
REC:211mA
FF/REW:215mA
DUBBING:238mA
DRY BATTERY
SIZE "D"
(IEC DESIGNATION R20)
6PCS. 9V

5-4. PRINTED WIRING BOARDS – TUNER SECTION –

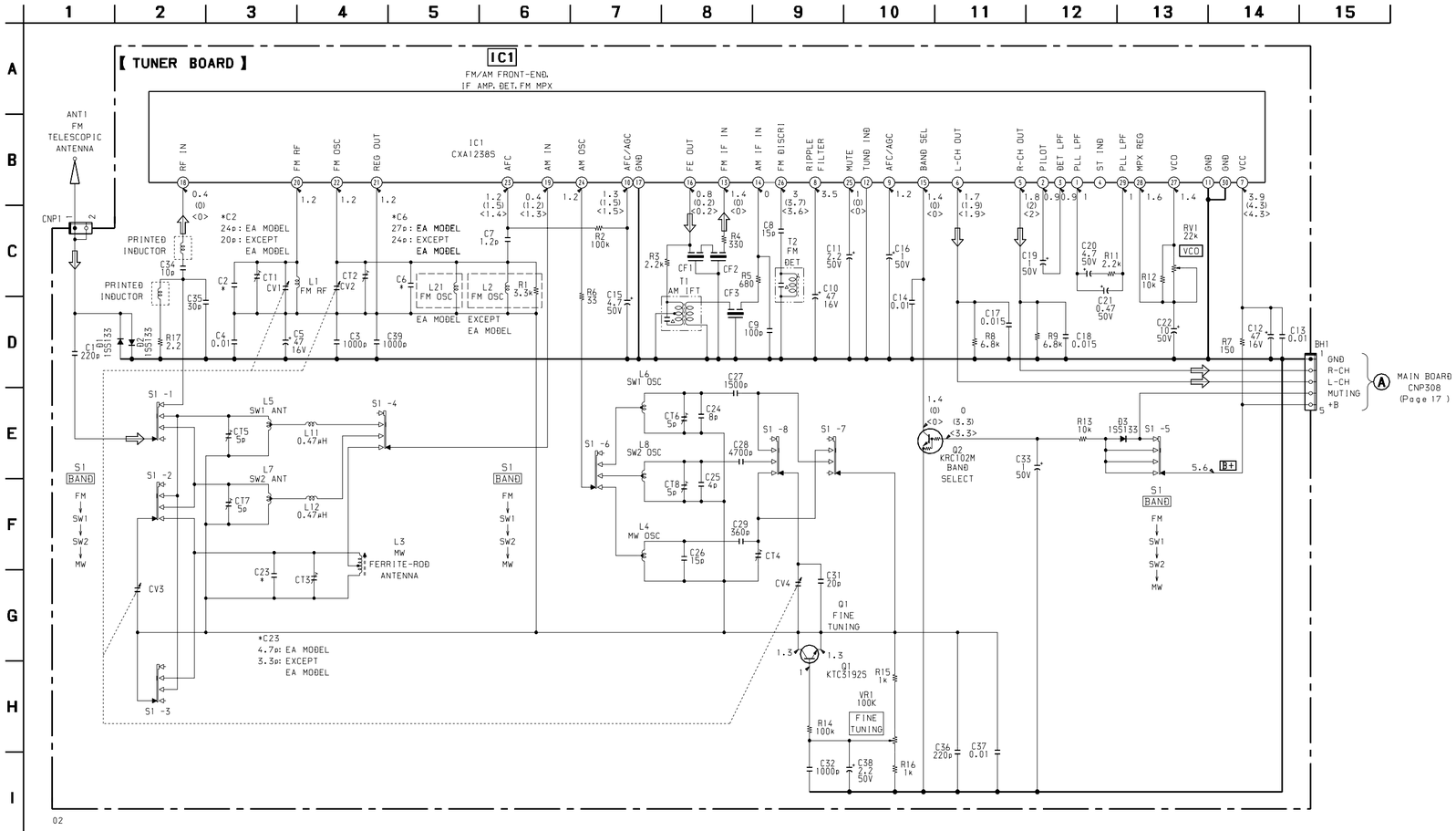
- **Semiconductor Location**

Ref. No.	Location
D1	E-2
D2	E-2
D3	D-2
IC1	D-4
Q1	C-2
Q2	E-4

Note:
- ○——— : parts extracted from the component side.
- ▒▒▒▒ : Pattern from the side which enables seeing.
- Abbreviation
  EA : Saudi Arabia

5-5. SCHEMATIC DIAGRAM – TUNER SECTION –

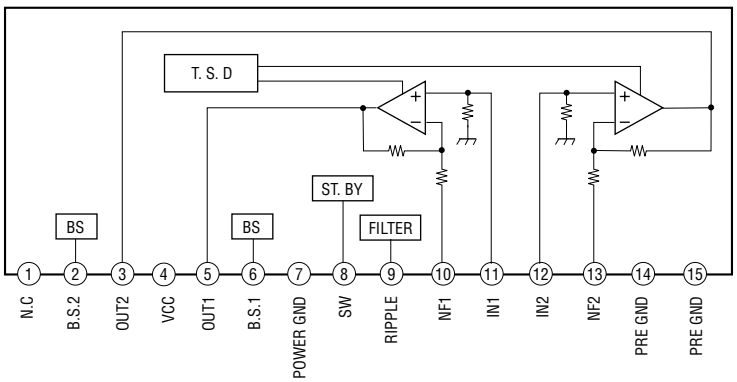
● Refer to page 24 for IC Block Diagram.



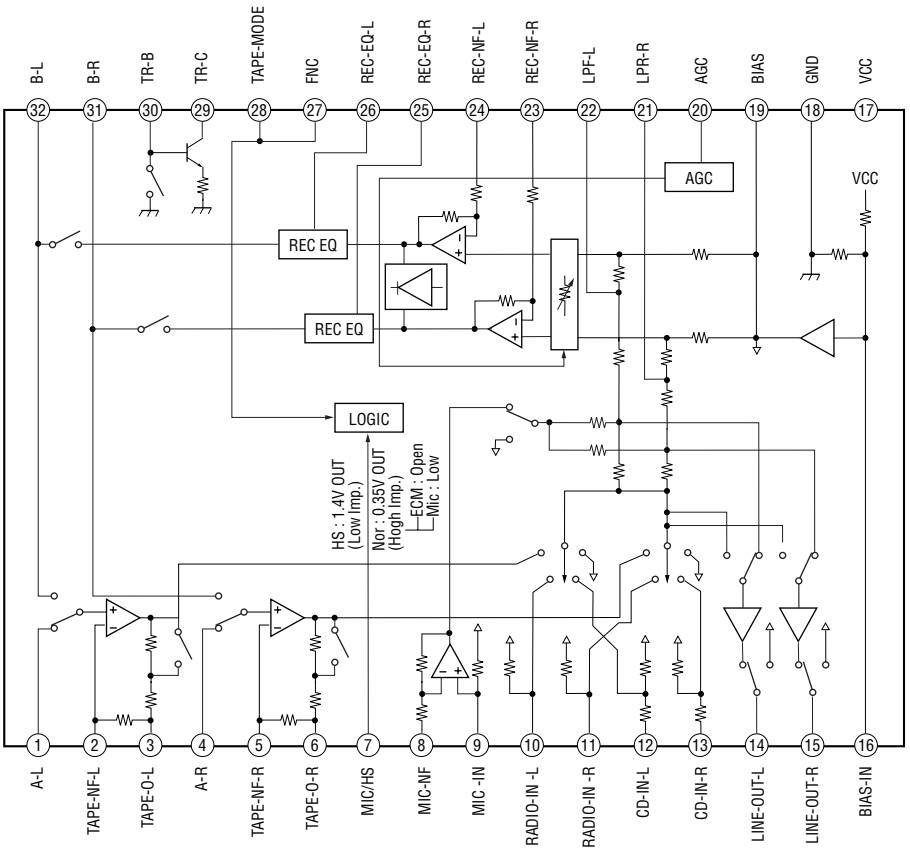
Note:
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- B+ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 9V and fed with regulated dc power supply from battery terminal.
- Voltages are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : MW
  < > : SW1,SW2
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
- Abbreviation
  EA : Saudi Arabia

- **IC Block Diagrams (Main Section)**

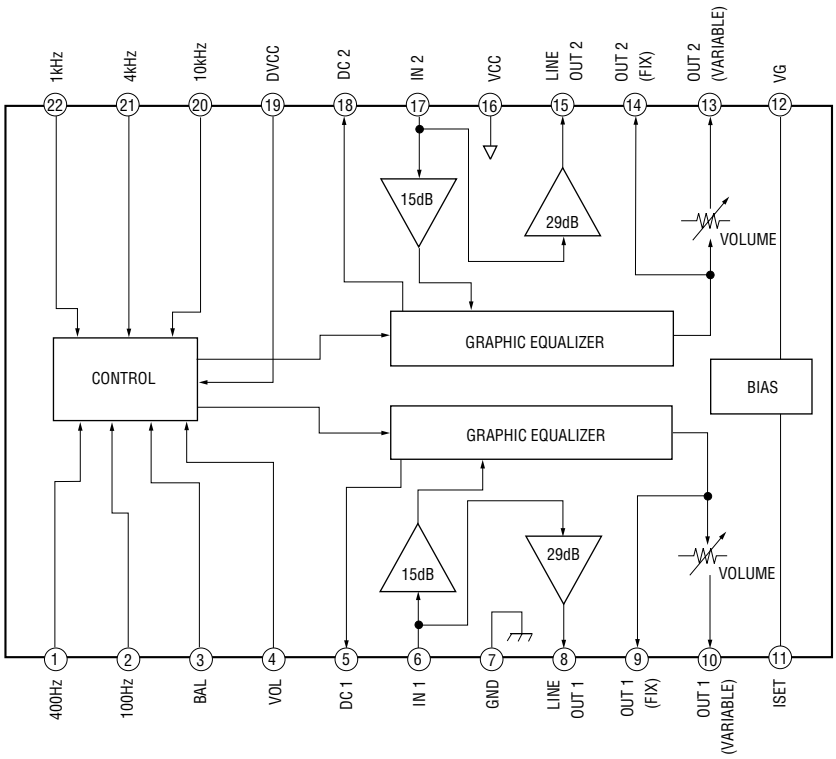
IC101, 201 BA5417



IC301 BA3426AS

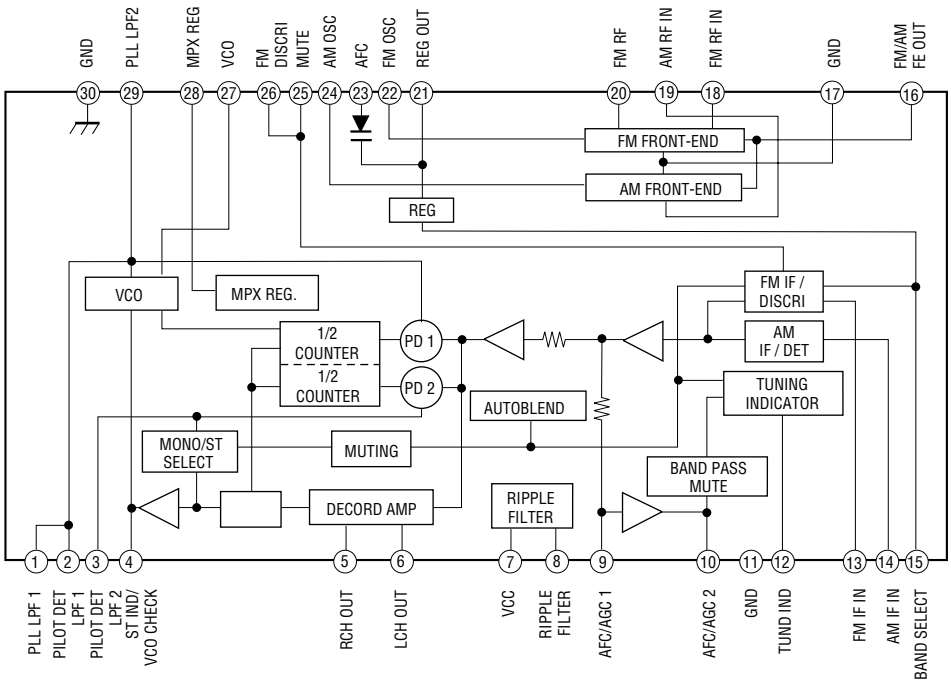


IC302 CXA1352AS



- **IC Block Diagram (Tuner Section)**

IC1 CXA1238S



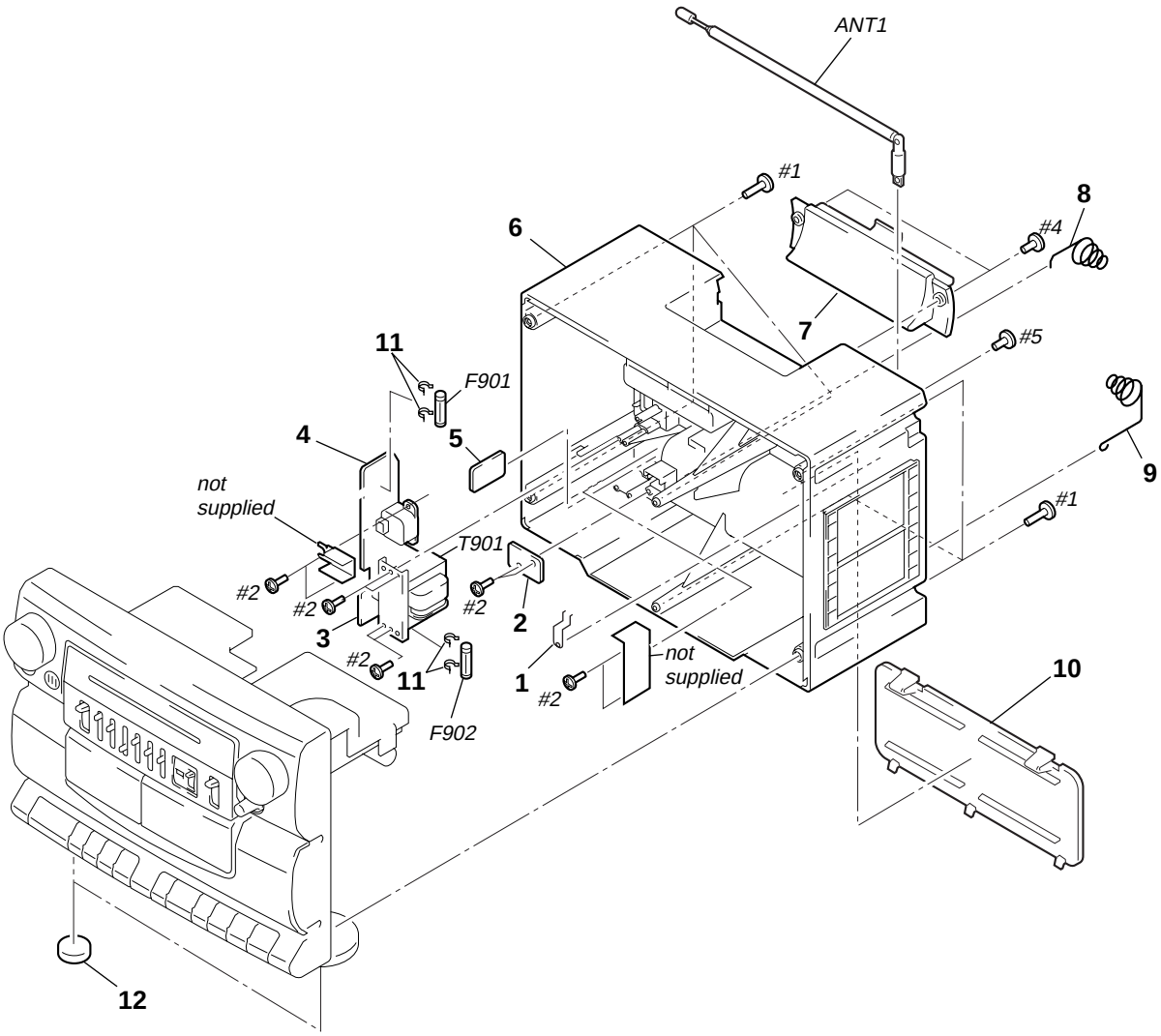
SECTION 6
EXPLODED VIEWS

NOTE :

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

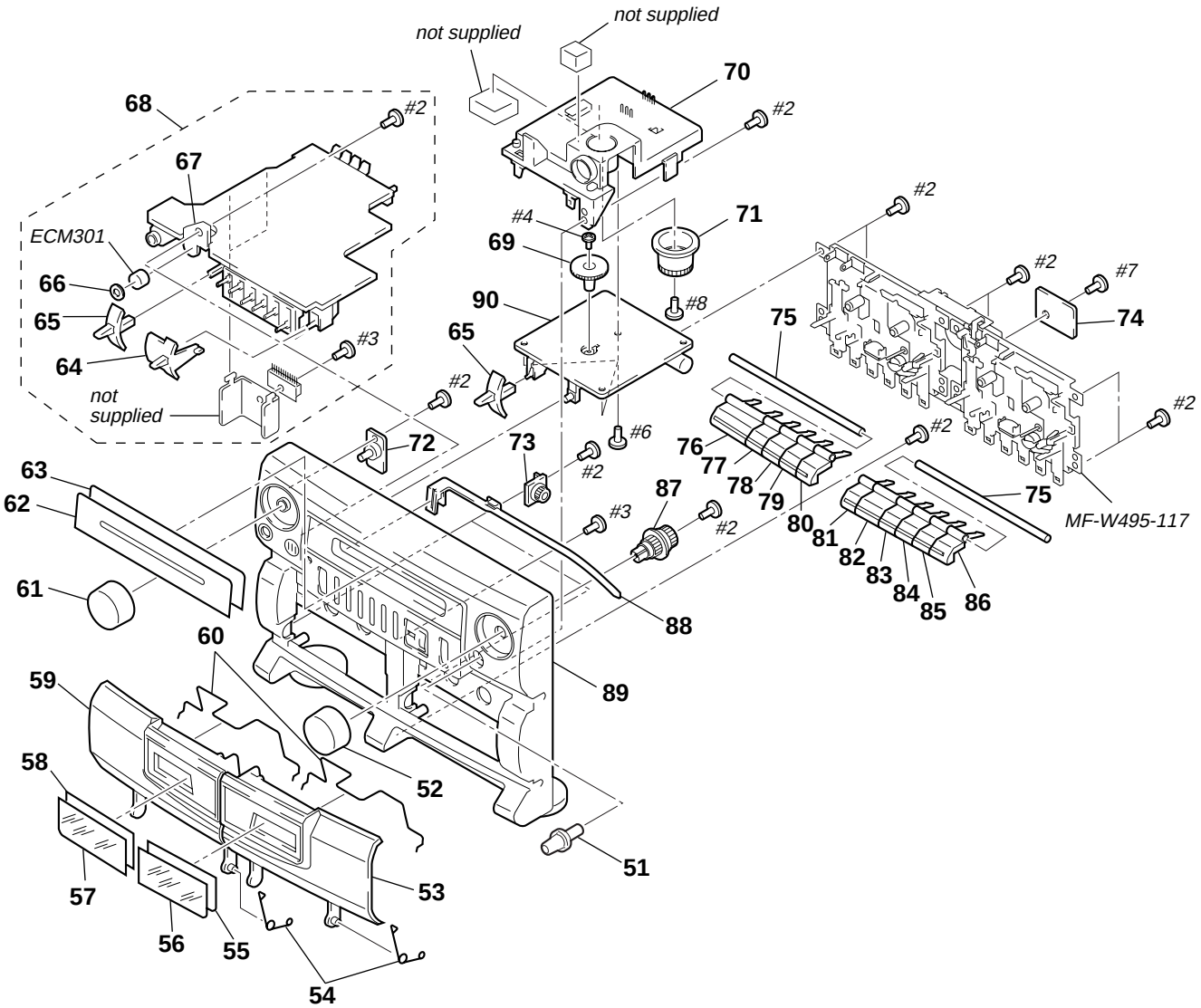
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

6-1. CABINET (REAR) SECTION



Ref. No.	Part No.	Description	Remark
1	3-026-399-01	SPRING, ANTENNA CONTACT	
* 2	1-669-569-11	BATT (-) BOARD	
* 3	1-669-565-11	POWER (DC) BOARD	
* 4	1-669-564-11	POWER (AC) BOARD	
* 5	1-669-568-11	BATT (+) BOARD	
6	3-024-738-01	CABINET (REAR) (Saudi Arabia)	
6	3-024-738-11	CABINET (REAR) (EXCEPT Saudi Arabia)	
7	3-026-405-01	COVER, HANDLE	
8	3-024-770-01	TERMINAL (-), BATT	
9	3-364-532-01	TERMINAL (+ -), BATTERY	
10	3-918-472-01	LID, BATTERY CASE	
11	1-533-233-31	HOLDER, FUSE	
12	3-908-999-01	FOOT	
ANT1	1-501-383-21	ANTENNA, TELESCOPIC	
⚠F901	1-532-467-51	FUSE, TIME LAG (T315mAL/250V)	
⚠F902	1-532-465-51	FUSE, TIME LAG (T3.15AL/250V)	
⚠T901	1-431-937-11	TRANSFORMER, POWER	

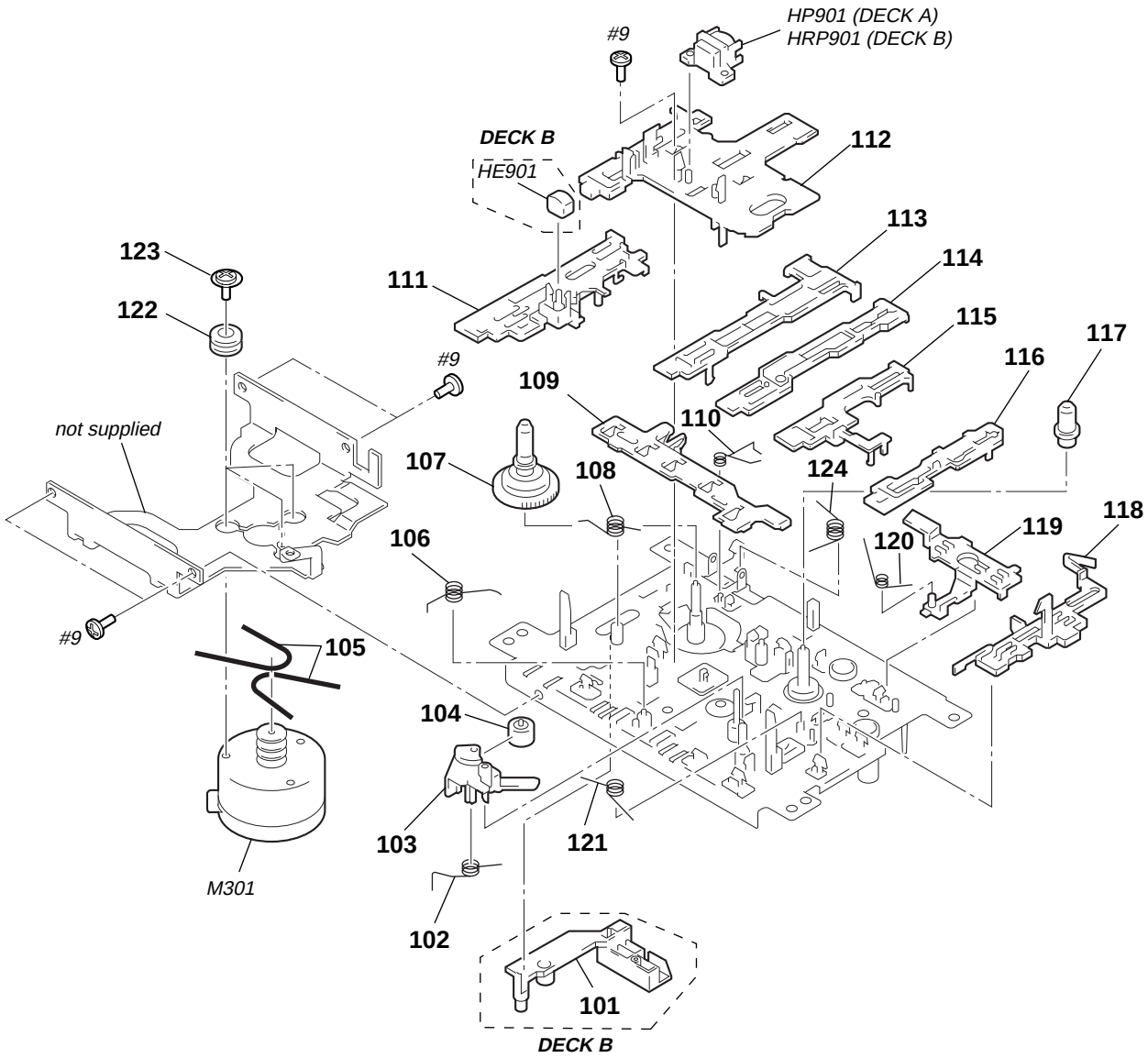
6-2. CABINET (FRONT) SECTION



Ref. No.	Part No.	Description	Remark
51	3-026-404-01	KNOB (F/T)	
52	3-024-758-01	KNOB (TUNE)	
53	3-024-741-01	LID (R), CASSETTE	
54	3-024-769-01	SPRING (OPEN), CASSETTE	
55	3-024-776-01	SHEET (C-R), ADHESIVE	
56	3-024-772-01	WINDOW (R), CASSETTE	
57	3-024-771-01	WINDOW (L), CASSETTE	
58	3-024-775-01	SHEET (C-L), ADHESIVE	
59	3-024-740-01	LID (L), CASSETTE	
60	3-024-768-01	SPRING (HOLDE), CASSETTE	
61	3-024-759-01	KNOB (VOL)	
62	3-024-773-11	WINDOW, SCALE (Saudi Arabia)	
62	3-024-773-01	WINDOW, SCALE (EXCEPT Saudi Arabia)	
63	3-024-774-01	SHEET (C-F), ADHESIVE	
64	3-024-756-01	KNOB (DSS)	
65	3-024-757-01	KNOB (FUNC)	
66	3-366-963-01	CUSHION (MIC)	
* 67	1-670-291-11	ECM BOARD	
* 68	A-3293-942-A	MAIN BOARD, COMPLETE	
69	3-024-755-01	GEAR (VC)	
70	3-024-739-01	CHASSIS (TUNE)	
71	3-024-753-01	GEAR (MIDWAY)	

Ref. No.	Part No.	Description	Remark
* 72	1-669-566-11	VOL BOARD	
73	3-351-377-01	DAMPER	
* 74	1-669-567-11	REC SW BOARD	
75	3-024-766-01	SHAFT, MD	
76	3-024-742-01	BUTTON (PLAY A), MD	
77	3-024-743-01	BUTTON (REW A), MD	
78	3-024-744-01	BUTTON (FF A), MD	
79	3-024-745-01	BUTTON (ST/EJ A), MD	
80	3-024-746-01	BUTTON (PAUSE A), MD	
81	3-024-747-01	BUTTON (REC), MD	
82	3-024-748-01	BUTTON (PLAY B), MD	
83	3-024-749-01	BUTTON (REW B), MD	
84	3-024-750-01	BUTTON (FF B), MD	
85	3-024-751-01	BUTTON (ST/EJ B), MD	
86	3-024-752-01	BUTTON (PAUSE B), MD	
87	3-024-754-01	GEAR (TUNER)	
88	3-024-760-01	POINTER	
89	3-024-737-01	CABINET (FRONT)	
* 90	A-3321-350-A	TUNER BOARD, COMPLETE (EXCEPT Saudi Arabia)	
* 90	A-3321-364-A	TUNER BOARD, COMPLETE (Saudi Arabia)	
ECM301	1-542-118-11	MICROPHONE, ELECTRET CONDENSER (MIC)	

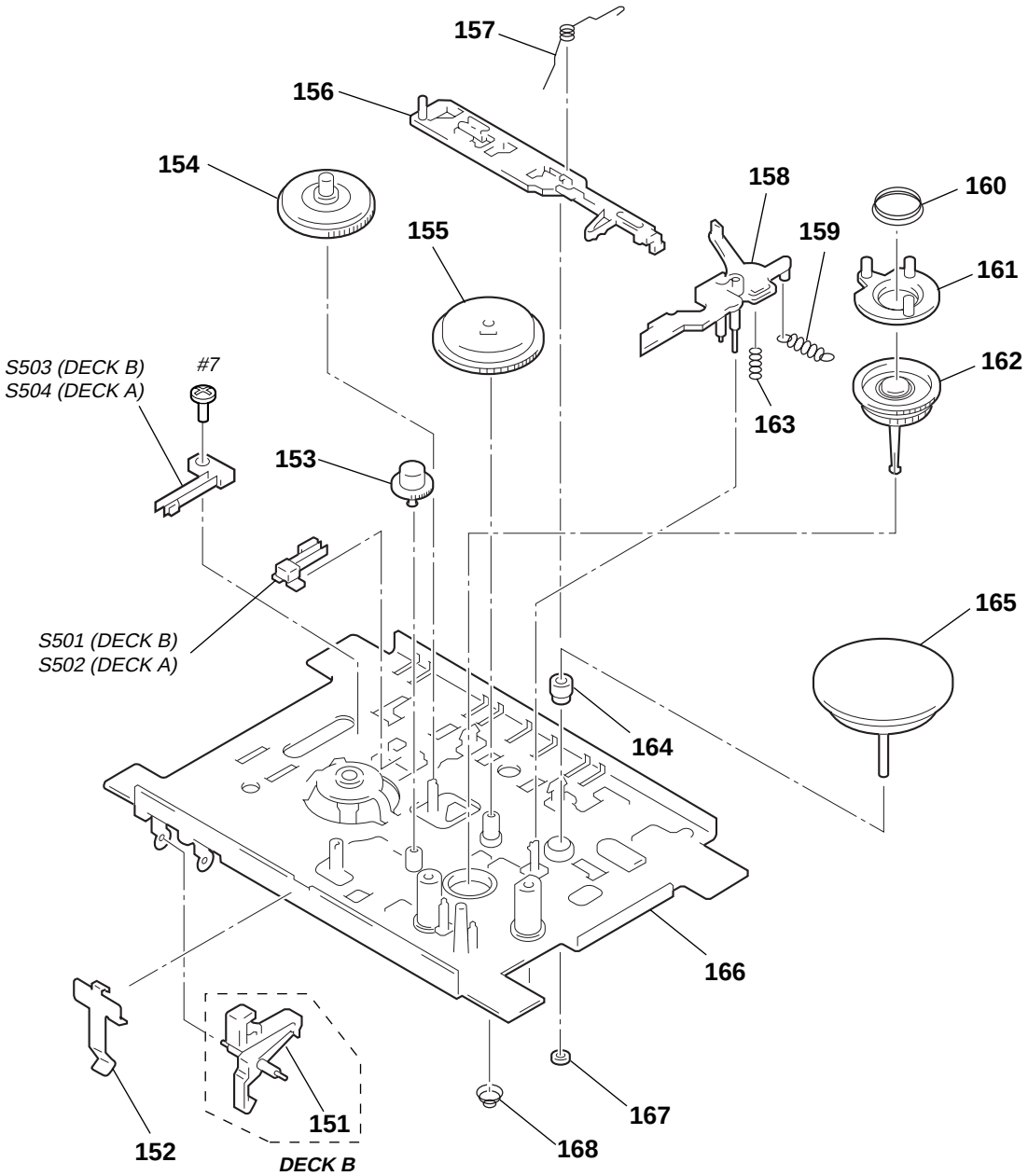
6-3. MECHANISM DECK SECTION-1
(MF-W495-117)



Ref. No.	Part No.	Description	Remark
101	3-025-846-01	LEVER (REC) (DECK B)	
102	3-933-025-01	SPRING (P), TORSION	
103	3-933-026-01	LEVER (P)	
104	3-933-024-01	ROLLER, PINCH	
105	3-016-031-11	BELT	
106	3-933-019-01	SPRING (F/R), TORSION	
107	3-933-016-01	GEAR (S REEL)	
108	3-933-028-01	SPRING (FWD), TORSION	
109	3-933-007-01	PLATE, LOCK	
110	3-022-794-02	SPRING (BT)	
111	3-008-590-01	SLIDER (REC)	
112	3-008-592-01	BASE (H), HEAD	
* 113	3-008-588-01	SLIDER (REW)	
* 114	3-008-589-13	SLIDER (FF)	
* 115	3-008-587-01	SLIDER (STOP)	

Ref. No.	Part No.	Description	Remark
* 116	3-008-591-01	SLIDER (PAUSE)	
117	3-933-004-01	CLAW, REEL	
* 118	3-933-006-01	SLIDER (EJECT)	
* 119	3-933-021-01	SLIDER (FRP)	
120	3-934-833-01	SPRING (FRP)	
121	3-933-010-01	SPRING (S/P), TORSION	
122	3-014-797-01	CUSHION, MOTOR	
123	3-570-027-00	SCREW, MOTOR	
124	3-023-780-01	SPRING	
M301	A-3311-837-A	MOTOR ASSY (W)	
HE901	1-543-876-11	HEAD (ERASE) (DECK B)	
HP901	1-500-454-11	HEAD,MAGNETIC(PLAYBACK) (DECK A)	
HRP901	1-500-454-11	HEAD,MAGNETIC(RECORD/PLAYBACK) (DECK B)	

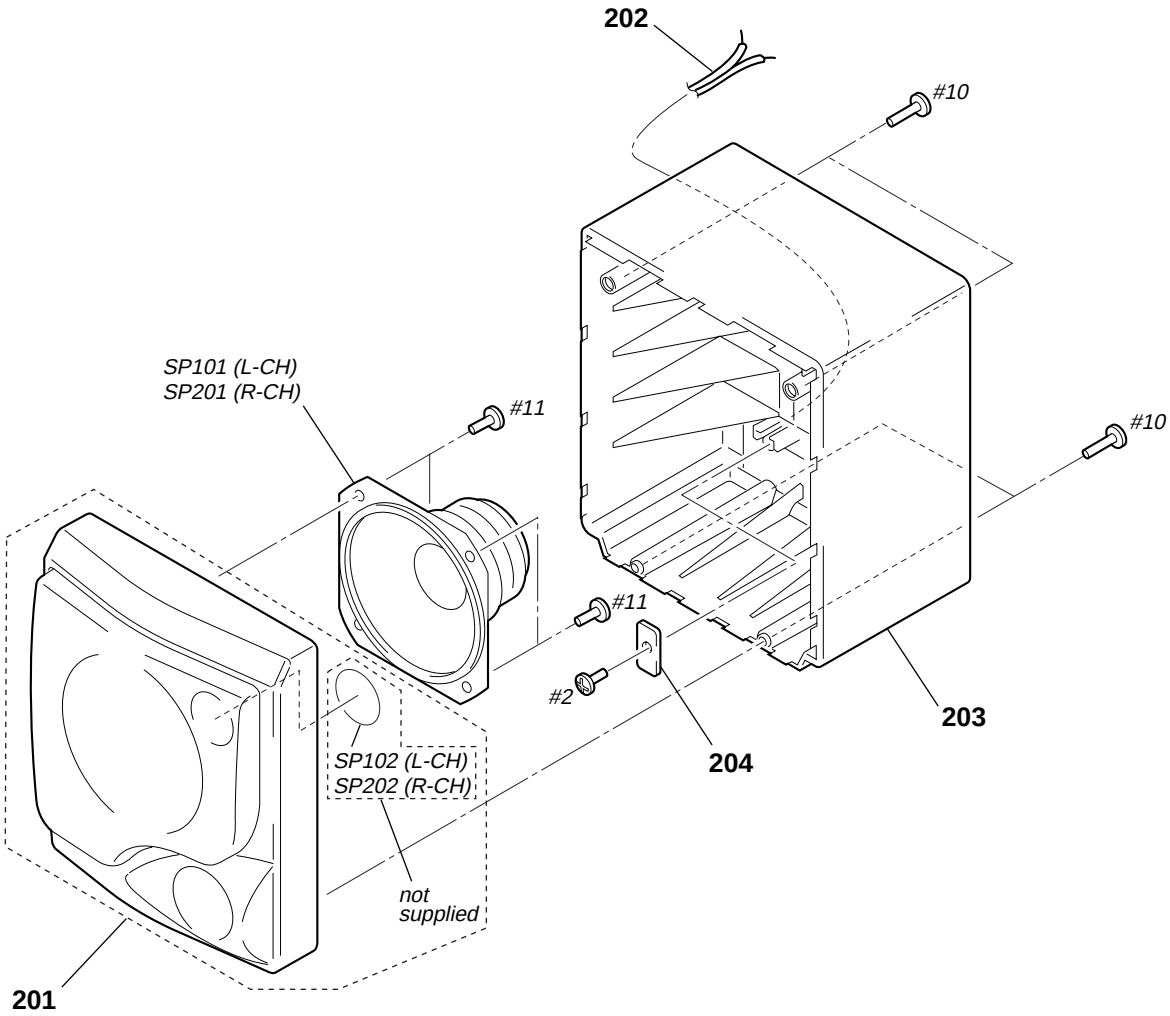
6-4. MECHANISM DECK SECTION-2
(MF-W495-117)



Ref. No.	Part No.	Description	Remark
151	3-933-029-01	LEVER, ERASING PREVENTION (DECK B)	
152	3-933-182-01	SPRING, CASSETTE	
153	3-932-995-01	GEAR (MID)	
154	X-3371-667-1	CLUTCH ASSY	
155	3-932-997-01	GEAR (CAM)	
* 156	3-932-999-11	SLIDER (SW)	
157	3-932-998-01	SPRING (GROUND), TORSION	
158	3-009-648-01	LEVER (S.OFF)	
159	3-020-108-01	SPRING, TENSION	
160	3-009-650-02	SPRING (K), COMPRESSION	
161	3-936-438-01	LEVER (K)	

Ref. No.	Part No.	Description	Remark
162	X-3373-572-1	REEL ASSY (N), T	
163	3-939-383-02	SPRING, COMPRESSION	
164	3-934-336-01	BEARING	
165	X-3374-077-1	FLYWHEEL ASSY (W)	
166	3-932-993-01	CHASSIS, OUTSERT	
167	3-343-358-01	RING, RETAINING	
168	3-933-005-01	SPRING (CAM), COMPRESSION	
S501	1-762-679-11	SWITCH, LEAF (MD POWER) (DECK B)	
S502	1-771-059-11	SWITCH, LEAF (MD POWER) (DECK A)	
S503	1-762-679-11	SWITCH, LEAF (PLAY) (DECK B)	
S504	1-771-059-11	SWITCH, LEAF (PLAY) (DECK A)	

6-5. SPEAKER SECTION



Ref. No.	Part No.	Description	Remark
201	A-3320-364-A	BOX (L) (FRONT) SUB ASSY, SP (L-CH)	
201	A-3320-367-A	BOX (R) (FRONT) SUB ASSY, SP (R-CH)	
202	1-690-969-11	CORD, SPEAKER CONNECTION	
* 203	3-007-896-01	CABINET (REAR) (R), SP (R-CH)	
* 203	3-007-895-01	CABINET (REAR) (L), SP (L-CH)	

Ref. No.	Part No.	Description	Remark
* 204	1-670-292-11	RETAINER BOARD	
SP101	1-505-965-11	SPEAKER WOOFER (L-CH)	
SP201	1-505-965-11	SPEAKER WOOFER (R-CH)	

BATT (+) **BATT (-)**

ECM **MAIN**

SECTION 7
ELECTRICAL PARTS LIST

NOTE :

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE :Metal oxide-film resistor
  F : nonflammable
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ , for example :
  uA.... : μ A.... , uPA.... : μ PA....
  uPB.... : μ PB.... , uPC.... : μ PC....
  uPD.... : μ PD....
- CAPACITORS
  uF : μ F
- COILS
  uH : μ H

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	1-669-568-11	BATT (+) BOARD			
		**********			
**********					
*	1-669-569-11	BATT (-) BOARD			
		**********			
**********					
*	1-670-291-11	ECM BOARD			
		**********			
		< MIC >			
ECM301	1-542-118-11	MICROPHONE, ELECTRET CONDENSER (MIC)			
**********					
*	A-3293-942-A	MAIN BOARD, COMPLETE			
		**********			
	3-024-756-01	KNOB (DSS)			
	3-024-757-01	KNOB (FUNC)			
	3-366-963-01	CUSHION (MIC)			
		< CAPACITOR >			
C101	1-162-294-31	CERAMIC	0.001uF	10%	50V
C102	1-162-294-31	CERAMIC	0.001uF	10%	50V
C103	1-162-291-31	CERAMIC	560PF	10%	50V
C104	1-162-840-11	CERAMIC	0.012uF	10%	16V
C105	1-104-664-11	ELECT	47uF	20%	16V
C106	1-124-902-00	ELECT	0.47uF	20%	50V
C107	1-161-375-00	CERAMIC	2200PF	20%	50V
C108	1-162-851-11	CERAMIC	0.1uF	10%	16V
C109	1-162-294-31	CERAMIC	0.001uF	10%	50V
C110	1-126-233-11	ELECT	22uF	20%	50V
C111	1-124-903-11	ELECT	1uF	20%	50V
C112	1-124-902-00	ELECT	0.47uF	20%	50V
C113	1-162-294-31	CERAMIC	0.001uF	10%	50V
C114	1-162-294-31	CERAMIC	0.001uF	10%	50V
C115	1-126-963-11	ELECT	4.7uF	20%	50V
C116	1-124-902-00	ELECT	0.47uF	20%	50V
C117	1-162-294-31	CERAMIC	0.001uF	10%	50V
C118	1-104-664-11	ELECT	47uF	20%	16V
C119	1-104-664-11	ELECT	47uF	20%	16V
C120	1-124-443-00	ELECT	100uF	20%	10V

Ref. No.	Part No.	Description			Remark
C121	1-124-443-00	ELECT	100uF	20%	10V
C122	1-130-497-00	MYLAR	0.15uF	5%	50V
C123	1-130-497-00	MYLAR	0.15uF	5%	50V
C124	1-104-664-11	ELECT	47uF	20%	16V
C125	1-161-494-00	CERAMIC	0.022uF		25V
C126	1-162-306-11	CERAMIC	0.1uF	20%	16V
C127	1-161-375-00	CERAMIC	2200PF	20%	50V
C201	1-162-294-31	CERAMIC	0.001uF	10%	50V
C202	1-162-294-31	CERAMIC	0.001uF	10%	50V
C203	1-162-291-31	CERAMIC	560PF	10%	50V
C204	1-162-840-11	CERAMIC	0.012uF	10%	16V
C205	1-104-664-11	ELECT	47uF	20%	16V
C206	1-124-902-00	ELECT	0.47uF	20%	50V
C207	1-161-375-00	CERAMIC	2200PF	20%	50V
C208	1-162-851-11	CERAMIC	0.1uF	10%	16V
C209	1-162-294-31	CERAMIC	0.001uF	10%	50V
C210	1-126-233-11	ELECT	22uF	20%	50V
C211	1-124-903-11	ELECT	1uF	20%	50V
C212	1-124-902-00	ELECT	0.47uF	20%	50V
C213	1-162-294-31	CERAMIC	0.001uF	10%	50V
C214	1-162-294-31	CERAMIC	0.001uF	10%	50V
C215	1-126-963-11	ELECT	4.7uF	20%	50V
C216	1-124-902-00	ELECT	0.47uF	20%	50V
C217	1-162-294-31	CERAMIC	0.001uF	10%	50V
C218	1-104-664-11	ELECT	47uF	20%	16V
C219	1-104-664-11	ELECT	47uF	20%	16V
C220	1-124-443-00	ELECT	100uF	20%	10V
C221	1-124-443-00	ELECT	100uF	20%	10V
C222	1-130-497-00	MYLAR	0.15uF	5%	50V
C223	1-130-497-00	MYLAR	0.15uF	5%	50V
C224	1-104-664-11	ELECT	47uF	20%	16V
C225	1-161-494-00	CERAMIC	0.022uF		25V
C226	1-162-306-11	CERAMIC	0.1uF	20%	16V
C227	1-161-375-00	CERAMIC	2200PF	20%	50V
C301	1-124-464-11	ELECT	0.22uF	20%	50V
C302	1-124-902-00	ELECT	0.47uF	20%	50V
C303	1-124-902-00	ELECT	0.47uF	20%	50V
C304	1-126-961-11	ELECT	2.2uF	20%	50V
C305	1-124-907-11	ELECT	10uF	20%	50V
C308	1-104-664-11	ELECT	47uF	20%	16V
C309	1-104-666-11	ELECT	220uF	20%	10V
C310	1-162-306-11	CERAMIC	0.01uF	20%	16V

Ref. No.	Part No.	Description			Remark
C311	1-162-306-11	CERAMIC	0.01uF	20%	16V
C312	1-162-306-11	CERAMIC	0.01uF	20%	16V
C313	1-126-963-11	ELECT	4.7uF	20%	50V
C314	1-126-961-11	ELECT	2.2uF	20%	50V
C315	1-104-666-11	ELECT	220uF	20%	10V
C316	1-124-443-00	ELECT	100uF	20%	10V
C318	1-126-937-11	ELECT	4700uF	20%	16V
C319	1-162-306-11	CERAMIC	0.01uF	20%	16V
C320	1-104-666-11	ELECT	220uF	20%	10V
C321	1-104-666-11	ELECT	220uF	20%	10V
C322	1-104-664-11	ELECT	47uF	20%	16V
C323	1-162-851-11	CERAMIC	0.1uF	10%	16V
C324	1-124-443-00	ELECT	100uF	20%	10V
C325	1-162-293-31	CERAMIC	820PF	10%	50V
C326	1-130-048-00	FILM	220PF	5%	50V
C327	1-162-215-31	CERAMIC	47PF	5%	50V
C328	1-162-282-31	CERAMIC	100PF	10%	50V
C329	1-162-306-11	CERAMIC	0.01uF	20%	16V
C330	1-104-664-11	ELECT	47uF	20%	16V
C331	1-162-306-11	CERAMIC	0.01uF	20%	16V
C332	1-104-666-11	ELECT	220uF	20%	10V
C335	1-162-306-11	CERAMIC	0.01uF	20%	16V
C401	1-124-902-00	ELECT	0.47uF	20%	50V
C402	1-126-963-11	ELECT	4.7uF	20%	50V
C403	1-124-443-00	ELECT	100uF	20%	10V
		< CONNECTOR >			
CNP301	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P			
CNP302	1-506-987-11	PIN, CONNECTOR (PC BOARD) 5P			
CNP303	1-506-987-11	PIN, CONNECTOR (PC BOARD) 5P			
CNP304	1-506-987-11	PIN, CONNECTOR (PC BOARD) 5P			
CNP305	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P			
* CNP306	1-580-160-11	PIN, CONNECTOR (PC BOARD) 8P			
CNP307	1-564-505-11	PLUG, CONNECTOR 2P			
CNP308	1-506-987-11	PIN, CONNECTOR (PC BOARD) 5P			
		< DIODE >			
D301	8-719-059-97	LED L-34HD (OPR/BATT)			
D302	8-719-109-97	DIODE RD6.8ES-B2			
D303	8-719-991-33	DIODE 1SS133T-77			
D304	8-719-991-33	DIODE 1SS133T-77			
D305	8-719-991-33	DIODE 1SS133T-77			
D306	8-719-991-33	DIODE 1SS133T-77			
D401	8-719-991-33	DIODE 1SS133T-77			
D402	8-719-991-33	DIODE 1SS133T-77			
D403	8-719-991-33	DIODE 1SS133T-77			
D404	8-719-991-33	DIODE 1SS133T-77			
D405	8-719-991-33	DIODE 1SS133T-77			
D406	8-719-991-33	DIODE 1SS133T-77			
D407	8-719-991-33	DIODE 1SS133T-77			
D408	8-719-991-33	DIODE 1SS133T-77			
D409	8-719-991-33	DIODE 1SS133T-77			
D410	8-719-991-33	DIODE 1SS133T-77			
D411	8-719-991-33	DIODE 1SS133T-77			
D412	8-719-991-33	DIODE 1SS133T-77			
D413	8-719-991-33	DIODE 1SS133T-77			
D414	8-719-991-33	DIODE 1SS133T-77			

Ref. No.	Part No.	Description			Remark
D415	8-719-991-33	DIODE 1SS133T-77			
D416	8-719-991-33	DIODE 1SS133T-77			
D417	8-719-991-33	DIODE 1SS133T-77			
D418	8-719-991-33	DIODE 1SS133T-77			
D419	8-719-991-33	DIODE 1SS133T-77			
D420	8-719-991-33	DIODE 1SS133T-77			
		< IC >			
IC101	8-759-426-51	IC BA5417			
IC201	8-759-426-51	IC BA5417			
IC301	8-759-457-58	IC BA3426AS			
IC302	8-752-067-34	IC CXA1352AS			
		< JACK >			
J301	1-566-891-11	JACK (PHONES)			
J302	1-537-330-11	TERMINAL BOARD (SPEAKER)			
		< COIL >			
L301	1-410-336-11	INDUCTOR	220uH		
		< TRANSISTOR >			
Q101	8-729-036-89	TRANSISTOR KTC3198GR-AT			
Q201	8-729-036-89	TRANSISTOR KTC3198GR-AT			
Q301	8-729-036-86	TRANSISTOR KTC3203Y-AT			
Q302	8-729-037-29	TRANSISTOR KRA102M			
Q303	8-729-036-89	TRANSISTOR KTC3198GR-AT			
Q304	8-729-115-30	TRANSISTOR 2SK105A-30			
Q305	8-729-037-29	TRANSISTOR KRA102M			
Q306	8-729-036-58	TRANSISTOR KRC102M-AT			
Q307	8-729-037-29	TRANSISTOR KRA102M			
Q401	8-729-036-89	TRANSISTOR KTC3198GR-AT			
Q402	8-729-036-89	TRANSISTOR KTC3198GR-AT			
		< RESISTOR >			
R101	1-247-815-91	CARBON	220	5%	1/4W
R102	1-247-815-91	CARBON	220	5%	1/4W
R103	1-247-807-31	CARBON	100	5%	1/4W
R104	1-249-417-11	CARBON	1K	5%	1/4W
R105	1-249-428-11	CARBON	8.2K	5%	1/4W
R106	1-247-807-31	CARBON	100	5%	1/4W
R107	1-249-417-11	CARBON	1K	5%	1/4W
R108	1-249-421-11	CARBON	2.2K	5%	1/4W
R109	1-249-421-11	CARBON	2.2K	5%	1/4W
R110	1-249-429-11	CARBON	10K	5%	1/4W
R111	1-249-419-11	CARBON	1.5K	5%	1/4W
R112	1-249-429-11	CARBON	10K	5%	1/4W
R113	1-249-419-11	CARBON	1.5K	5%	1/4W
R114	1-247-815-91	CARBON	220	5%	1/4W
R115	1-247-815-91	CARBON	220	5%	1/4W
R116	1-249-434-11	CARBON	27K	5%	1/4W
⚠R117	1-249-385-11	CARBON	2.2	5%	1/6W F
R118	1-249-385-11	CARBON	2.2	5%	1/6W
R119	1-249-417-11	CARBON	1K	5%	1/4W
R120	1-247-807-31	CARBON	100	5%	1/4W
R201	1-247-815-91	CARBON	220	5%	1/4W
R202	1-247-815-91	CARBON	220	5%	1/4W
R203	1-247-807-31	CARBON	100	5%	1/4W

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MAIN POWER (AC)

Ref. No.	Part No.	Description			Remark
R204	1-249-417-11	CARBON	1K	5%	1/4W
R205	1-249-428-11	CARBON	8.2K	5%	1/4W
R206	1-247-807-31	CARBON	100	5%	1/4W
R207	1-249-417-11	CARBON	1K	5%	1/4W
R208	1-249-421-11	CARBON	2.2K	5%	1/4W
R209	1-249-421-11	CARBON	2.2K	5%	1/4W
R210	1-249-429-11	CARBON	10K	5%	1/4W
R211	1-249-419-11	CARBON	1.5K	5%	1/4W
R212	1-249-429-11	CARBON	10K	5%	1/4W
R213	1-249-419-11	CARBON	1.5K	5%	1/4W
R214	1-247-815-91	CARBON	220	5%	1/4W
R215	1-247-815-91	CARBON	220	5%	1/4W
R216	1-249-434-11	CARBON	27K	5%	1/4W
⚠R217	1-249-385-11	CARBON	2.2	5%	1/6W F
R218	1-249-385-11	CARBON	2.2	5%	1/6W
R219	1-249-417-11	CARBON	1K	5%	1/4W
R220	1-247-807-31	CARBON	100	5%	1/4W
R301	1-249-425-11	CARBON	4.7K	5%	1/4W
R302	1-249-421-11	CARBON	2.2K	5%	1/4W
R303	1-247-895-91	CARBON	470K	5%	1/4W
R304	1-247-843-11	CARBON	3.3K	5%	1/4W
R305	1-247-843-11	CARBON	3.3K	5%	1/4W
R306	1-247-863-91	CARBON	22K	5%	1/4W
R307	1-247-863-91	CARBON	22K	5%	1/4W
R308	1-249-417-11	CARBON	1K	5%	1/4W
R309	1-249-429-11	CARBON	10K	5%	1/4W
R310	1-249-429-11	CARBON	10K	5%	1/4W
R311	1-249-429-11	CARBON	10K	5%	1/4W
R313	1-249-425-11	CARBON	4.7K	5%	1/4W
R314	1-249-420-11	CARBON	1.8K	5%	1/4W
R315	1-249-425-11	CARBON	4.7K	5%	1/4W
R316	1-249-429-11	CARBON	10K	5%	1/4W
R317	1-247-863-91	CARBON	22K	5%	1/4W
R318	1-249-407-11	CARBON	150	5%	1/4W
R319	1-247-863-91	CARBON	22K	5%	1/4W
R320	1-249-439-11	CARBON	68K	5%	1/4W
⚠R322	1-249-385-11	CARBON	2.2	5%	1/6W F
R323	1-249-421-11	CARBON	2.2K	5%	1/4W
R324	1-249-417-11	CARBON	1K	5%	1/4W
R325	1-247-815-91	CARBON	220	5%	1/4W
R326	1-249-429-11	CARBON	10K	5%	1/4W
R327	1-249-429-11	CARBON	10K	5%	1/4W
R328	1-247-884-11	CARBON	160K	5%	1/4W
R331	1-249-441-11	CARBON	100K	5%	1/4W
R332	1-249-424-11	CARBON	3.9K	5%	1/4W
R334	1-249-429-11	CARBON	10K	5%	1/4W
R335	1-249-425-11	CARBON	4.7K	5%	1/4W
R336	1-249-427-11	CARBON	6.8K	5%	1/4W
R401	1-247-807-31	CARBON	100	5%	1/4W
R402	1-249-429-11	CARBON	10K	5%	1/4W
R403	1-249-417-11	CARBON	1K	5%	1/4W
R404	1-249-425-11	CARBON	4.7K	5%	1/4W
R405	1-249-415-11	CARBON	680	5%	1/4W
R406	1-247-863-91	CARBON	22K	5%	1/4W
R407	1-249-437-11	CARBON	47K	5%	1/4W
R408	1-247-807-31	CARBON	100	5%	1/4W
R409	1-249-425-11	CARBON	4.7K	5%	1/4W

Ref. No.	Part No.	Description			Remark
R410	1-249-429-11	CARBON	10K	5%	1/4W
R411	1-247-843-11	CARBON	3.3K	5%	1/4W
R412	1-249-421-11	CARBON	2.2K	5%	1/4W
R413	1-249-421-11	CARBON	2.2K	5%	1/4W
R414	1-249-431-11	CARBON	15K	5%	1/4W
R415	1-249-427-11	CARBON	6.8K	5%	1/4W
R416	1-249-429-11	CARBON	10K	5%	1/4W
R417	1-249-429-11	CARBON	10K	5%	1/4W
R418	1-249-429-11	CARBON	10K	5%	1/4W
R419	1-249-429-11	CARBON	10K	5%	1/4W
R420	1-249-429-11	CARBON	10K	5%	1/4W
R421	1-249-429-11	CARBON	10K	5%	1/4W
R422	1-249-429-11	CARBON	10K	5%	1/4W
R423	1-249-429-11	CARBON	10K	5%	1/4W
R424	1-249-429-11	CARBON	10K	5%	1/4W
R425	1-249-429-11	CARBON	10K	5%	1/4W
R426	1-249-421-11	CARBON	2.2K	5%	1/4W
R427	1-247-891-00	CARBON	330K	5%	1/4W
R428	1-249-421-11	CARBON	2.2K	5%	1/4W
R429	1-249-441-11	CARBON	100K	5%	1/4W
R430	1-249-429-11	CARBON	10K	5%	1/4W
R431	1-249-429-11	CARBON	10K	5%	1/4W
R432	1-249-429-11	CARBON	10K	5%	1/4W
R433	1-249-441-11	CARBON	100K	5%	1/4W
R434	1-249-441-11	CARBON	100K	5%	1/4W
R435	1-249-422-11	CARBON	2.7K	5%	1/4W
R436	1-249-417-11	CARBON	1K	5%	1/4W
R437	1-247-863-91	CARBON	22K	5%	1/4W
R438	1-247-863-91	CARBON	22K	5%	1/4W
R439	1-247-863-91	CARBON	22K	5%	1/4W
R440	1-247-863-91	CARBON	22K	5%	1/4W
R441	1-247-863-91	CARBON	22K	5%	1/4W

		< VARIABLE RESISTOR >
RV302	1-225-654-11	RES, VAR, SLIDE 8.33K/8.33KX5 (5 BAND GRAPHIC EQUALIZER)
RV303	1-238-598-11	RES, ADJ, CARBON 2.2K (TAPE SPEED)
		< SWITCH >
S301	1-571-476-21	SWITCH, LEVER SLIDE (FUNCTION)
S303	1-771-521-11	SWITCH, LEVER SLIDE (ISS)
S401	1-571-476-21	SWITCH, LEVER SLIDE (PRESET MODE)
		< TRANSFORMER >
T301	1-416-041-11	TRANSFORMER, BIAS OSCILLATION

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*	1-669-564-11	POWER (AC) BOARD
		**********
	1-533-233-31	HOLDER, FUSE
		< FUSE >
⚠F901	1-532-467-51	FUSE, TIME LAG (T315mAL/250V)
		< JACK >
⚠J901	1-526-838-11	INLET, AC 2P (~ AC IN)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
		< SWITCH >			
⚠S901	1-552-921-00	SWITCH, POWER (VOLTAGE CHANGE)			
**********					
*	1-669-565-11	POWER (DC) BOARD			
		**********			
	1-533-233-31	HOLDER, FUSE			
		< CAPACITOR >			
C901	1-101-005-00	CERAMIC	22000PF		50V
C902	1-101-005-00	CERAMIC	22000PF		50V
C903	1-101-005-00	CERAMIC	22000PF		50V
C904	1-101-005-00	CERAMIC	22000PF		50V
		< DIODE >			
D901	8-719-046-07	DIODE 2A02M			
D902	8-719-046-07	DIODE 2A02M			
D903	8-719-046-07	DIODE 2A02M			
D904	8-719-046-07	DIODE 2A02M			
		< FUSE >			
⚠F902	1-532-465-51	FUSE, TIME LAG (T3.15AL/250V)			
**********					
*	1-669-567-11	REC SW BOARD			
		**********			
		< SWITCH >			
S302	1-572-325-11	SWITCH, SLIDE (PB/REC)			
**********					
*	A-3321-350-A	TUNER BOARD, COMPLETE			
					(EXCEPT Saudi Arabia)
*	A-3321-364-A	TUNER BOARD, COMPLETE (Saudi Arabia)			
		**********			
		< CAPACITOR >			
C1	1-162-286-21	CERAMIC	220PF	10%	50V
C2	1-162-206-31	CERAMIC	20PF	5%	50V
					(EXCEPT Saudi Arabia)
C2	1-162-208-31	CERAMIC	24PF	5%	50V
					(Saudi Arabia)
C3	1-162-294-31	CERAMIC	0.001uF	10%	50V
C4	1-162-306-11	CERAMIC	0.01uF	20%	16V
C5	1-104-664-11	ELECT	47uF	20%	16V
C6	1-102-960-00	CERAMIC	24PF	5%	50V
					(EXCEPT Saudi Arabia)
C6	1-102-961-00	CERAMIC	27PF	5%	50V
					(Saudi Arabia)
C7	1-162-188-31	CERAMIC	1.2PF	20%	50V
C8	1-162-203-31	CERAMIC	15PF	5%	50V
C9	1-162-282-31	CERAMIC	100PF	10%	50V
C10	1-104-664-11	ELECT	47uF	20%	16V
C11	1-126-961-11	ELECT	2.2uF	20%	50V
C12	1-104-664-11	ELECT	47uF	20%	16V
C13	1-162-306-11	CERAMIC	0.01uF	20%	16V
C14	1-162-306-11	CERAMIC	0.01uF	20%	16V

Ref. No.	Part No.	Description			Remark
C15	1-126-963-11	ELECT	4.7uF	20%	50V
C16	1-124-903-11	ELECT	1uF	20%	50V
C17	1-162-841-11	CERAMIC	0.015uF	10%	16V
C18	1-162-841-11	CERAMIC	0.015uF	10%	16V
C19	1-124-903-11	ELECT	1uF	20%	50V
C20	1-126-963-11	ELECT	4.7uF	20%	50V
C21	1-124-902-00	ELECT	0.47uF	20%	50V
C22	1-124-907-11	ELECT	10uF	20%	50V
C23	1-162-193-31	CERAMIC	3.3PF	10%	50V
					(EXCEPT Saudi Arabia)
C23	1-162-195-31	CERAMIC	4.7PF	10%	50V
					(Saudi Arabia)
C24	1-102-945-00	CERAMIC	8.0PF	+-0.5PF	50V
C25	1-164-617-11	CERAMIC	4PF	5%	50V
C26	1-102-951-00	CERAMIC	15PF	5%	50V
C27	1-136-480-11	FILM	0.0015uF	5%	100V
C28	1-136-287-11	FILM	0.0047uF	5%	100V
C29	1-107-734-11	FILM	360PF	5%	100V
C31	1-162-206-31	CERAMIC	20PF	5%	50V
C32	1-162-294-31	CERAMIC	0.001uF	10%	50V
C33	1-124-903-11	ELECT	1uF	20%	50V
C34	1-162-199-31	CERAMIC	10PF	5%	50V
C35	1-162-210-31	CERAMIC	30PF	5%	50V
C36	1-162-286-21	CERAMIC	220PF	10%	50V
C37	1-162-306-11	CERAMIC	0.01uF	20%	16V
C38	1-126-961-11	ELECT	2.2uF	20%	50V
C39	1-162-294-31	CERAMIC	0.001uF	10%	50V
		< FILTER >			
CF1	1-760-738-61	FILTER, CERAMIC			
CF2	1-760-738-61	FILTER, CERAMIC			
CF3	1-767-615-11	FILTER, CERAMIC			
		< CONNECTOR >			
* CNP1	1-580-154-11	PIN, CONNECTOR (PC BOARD) 2P			
		< TRIMMER >			
CT1	1-151-693-11	CAP, VAR			
CT2	1-151-693-11	CAP, VAR			
CT3	1-151-693-11	CAP, VAR			
CT4	1-151-693-11	CAP, VAR			
CT5	1-141-360-41	CAP, FILM TRIMMER 5PF			
CT6	1-141-360-41	CAP, FILM TRIMMER 5PF			
CT7	1-141-360-41	CAP, FILM TRIMMER 5PF			
CT8	1-141-360-41	CAP, FILM TRIMMER 5PF			
		< VARIABLE CAPACITOR >			
CV1	1-151-693-11	CAP, VAR			
CV2	1-151-693-11	CAP, VAR			
CV3	1-151-693-11	CAP, VAR			
CV4	1-151-693-11	CAP, VAR			
		< DIODE >			
D1	8-719-991-33	DIODE 1SS133T-77			
D2	8-719-991-33	DIODE 1SS133T-77			
D3	8-719-991-33	DIODE 1SS133T-77			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

TUNER **VOL**

Ref. No.	Part No.	Description	Remark
		< IC >	
IC1	8-752-050-20	IC CXA1238S	
		< COIL >	
L1	1-422-317-31	COIL, AIR-CORE	
L2	1-422-230-11	COIL, AIR-CORE (EXCEPT Saudi Arabia)	
L3	1-402-593-11	ANTENNA, FERRITE-ROD (MW)	
L4	1-406-253-11	COIL (OSC) (MW)	
L5	1-402-597-31	COIL (ANT) (SW1)	
L6	1-406-247-11	COIL (OSC) (SW1)	
L7	1-402-539-11	COIL (ANT) (SW2)	
L8	1-406-470-11	COIL (OSC) (SW2)	
L11	1-410-750-41	INDUCTOR 0.47uH	
L12	1-410-750-41	INDUCTOR 0.47uH	
L21	1-406-957-21	COIL (WITH CORE) (Saudi Arabia)	
		< TRANSISTOR >	
Q1	8-729-922-66	TRANSISTOR 2SC2410SN	
Q2	8-729-036-58	TRANSISTOR KRC102M-AT	
		< RESISTOR >	
R1	1-247-843-11	CARBON 3.3K 5% 1/4W	(EXCEPT Saudi Arabia)
R2	1-249-441-11	CARBON 100K 5% 1/4W	
R3	1-249-421-11	CARBON 2.2K 5% 1/4W	
R4	1-249-411-11	CARBON 330 5% 1/4W	
R5	1-249-415-11	CARBON 680 5% 1/4W	
R6	1-249-399-11	CARBON 33 5% 1/4W	
R7	1-249-407-11	CARBON 150 5% 1/4W	
R8	1-249-427-11	CARBON 6.8K 5% 1/4W	
R9	1-249-427-11	CARBON 6.8K 5% 1/4W	
R11	1-249-421-11	CARBON 2.2K 5% 1/4W	
R12	1-249-429-11	CARBON 10K 5% 1/4W	
R13	1-249-429-11	CARBON 10K 5% 1/4W	
R14	1-249-441-11	CARBON 100K 5% 1/4W	
R15	1-249-417-11	CARBON 1K 5% 1/4W	
R16	1-249-417-11	CARBON 1K 5% 1/4W	
R17	1-249-385-11	CARBON 2.2 5% 1/6W	
		< VARIABLE RESISTOR >	
RV1	1-238-601-11	RES, ADJ, CARBON 22K (VCO)	
		< SWITCH >	
S1	1-771-422-11	SWITCH, LEVER SLIDE (BAND)	
		< TRANSFORMER >	
T1	1-404-158-11	COIL, IFT	
T2	1-409-944-11	COIL (DET)	
		< VARIABLE RESISTOR >	
VR1	1-223-693-11	RES, VAR, CARBON 100K (FINE TUNING)	

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Ref. No.	Part No.	Description	Remark
*	1-669-566-11	VOL BOARD	
		**********	
		< VARIABLE RESISTOR >	
RV301	1-223-761-11	RES, VAR, CARBON 50K (VOLUME)	

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		MISCELLANEOUS	
		**********	
11	1-533-233-31	HOLDER, FUSE	
202	1-690-969-11	CORD, SPEAKER CONNECTION	
* 204	1-670-292-11	RETAINER BOARD	
ANT1	1-501-383-21	ANTENNA, TELESCOPIC	
ECM301	1-542-118-11	MICROPHONE, ELECTRET CONDENSER (MIC)	
⚠F901	1-532-467-51	FUSE, TIME LAG (T315mAL/250V)	
⚠F902	1-532-465-51	FUSE, TIME LAG (T3.15AL/250V)	
HE901	1-543-876-11	HEAD (ERASE) (DECK B)	
HP901	1-500-454-11	HEAD,MAGNETIC(PLAYBACK) (DECK A)	
HRP901	1-500-454-11	HEAD,MAGNETIC(RECORD/PLAYBACK)	(DECK B)
M301	A-3311-837-A	MOTOR ASSY (W)	
S501	1-762-679-11	SWITCH, LEAF (MD POWER) (DECK B)	
S502	1-771-059-11	SWITCH, LEAF (MD POWER)(DECK A)	
S503	1-762-679-11	SWITCH, LEAF (PLAY) (DECK B)	
S504	1-771-059-11	SWITCH, LEAF (PLAY) (DECK A)	
SP101	1-505-965-11	SPEAKER WOOFER (L-CH)	
SP201	1-505-965-11	SPEAKER WOOFER (R-CH)	
⚠T901	1-431-937-11	TRANSFORMER, POWER	

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		ACCESSORIES & PACKING MATERIALS	
		**********	
⚠	1-569-008-21	ADAPTOR, CONVERSION (2P)	
⚠	1-769-412-11	CORD, POWER	
	3-862-882-11	MANUAL, INSTRUCTION (ENGLISH)	
	3-862-882-21	MANUAL, INSTRUCTION (FRENCH, SPANISH)	

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		HARDWARE LIST	
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#1	3-685-549-14	SCREW +BTP 3X14 TYPE2 N-S	
#2	7-685-547-14	SCREW +BTP 3X10 TYPE2 N-S	
#3	7-685-645-79	SCREW +BVTP 3X6 TYPE2	
#4	7-621-770-87	SCREW +B 2.6X5	
#5	7-682-548-09	SCREW +B 3X8	
#6	7-685-647-79	SCREW +BVTP 3X10 TYPE2	
#7	7-685-783-09	SCREW +PTT 2X6 (S)	
#8	7-685-134-19	SCREW, +P 2.6X8,TYPE2 NON-SLIT	
#9	7-685-782-01	SCREW +PTT 2X5 (S)	
#10	7-685-649-79	SCREW +BVTP 3X14 TYPE2	
#11	7-687-264-11	SCREW,TOTSU PTPWH 4X10,TYPE2	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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